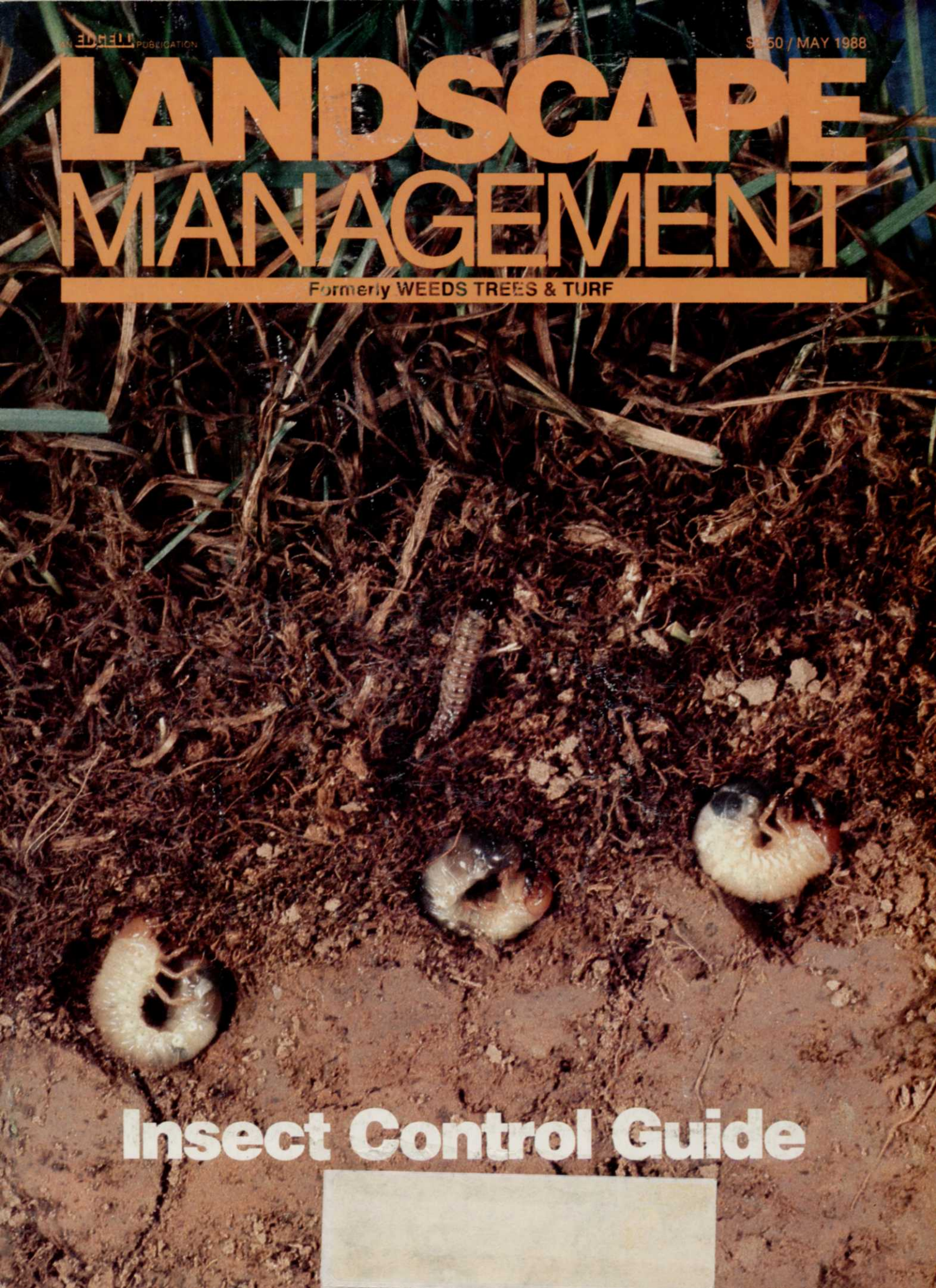


AN EDGELL PUBLICATION

\$2.50 / MAY 1988

LANDSCAPE MANAGEMENT

Formerly WEEDS TREES & TURF



Insect Control Guide

**'The best greens I
ever putt on'**

Harry Anderson, Greens Chairman
Wilmington CC, Delaware



David Kroll, CGCS, inspects one of 18 PennLinks greens at Wilmington CC, Delaware

PennLinks creeping bentgrass — working wonders at Wilmington

New bentgrass variety provides a truer putting surface at Wilmington CC.

When David Kroll, CGCS, was dealt the problem of bentgrass

This Wilmington green was seeded in early '60s with poor quality seed fraudulently labeled Penncross. All the greens deteriorated to the point that they had to be entirely renovated.



deterioration on the greens of this prestigious country club, he called in the experts to help. The greens could not be salvaged, so they were treated with methyl bromide and completely re-greened.

Dr. Joe Duich, Penn State University, suggested seeding with a bentgrass coded PSU 126.

Two and a half years later, the greens look great and with PennLinks' more upright growth pattern, putt like a dream. That experimental variety is now named PENNLINKS, and is available in limited quantities.

Available in limited supply this fall in the re-usable 6 gallon "PENN PAIL."



PennLinks' Oregon certified blue tags qualify for cash awards to qualifying turf organizations for turf research. Call our toll-free number for details. Marketed by **TEE-2-GREEN Corp.**, PO Box 250 Hubbard, OR 97032 1-800-547-0255 TWX 510-590-0957

Circle No. 142 on Reader Inquiry Card

Look closely at this course. No dollar spot in sight. Not even resistant dollar spot, thanks to Rubigan.

Rubigan controls dollar spot on your tees, greens and fairways for only about 10 cents per 1,000 square feet per day. That's all. And you get a full 28 days control with just one 0.4 oz. application per 1,000 square feet.

Now look closer. Notice there's also no fusarium blight, necrotic ring spot, summer patch or take-all patch. And no large brown patch, either, with a Daconil 2787® tank mix.

Only Rubigan is labeled to prevent

and treat all these harmful diseases. No wonder Rubigan is the superintendents' choice for dependable dollar spot control in all types of weather.

This year, make your course look this spotless. Make it dollar spotless with Rubigan. See your Elanco distributor. Or call toll-free: **1-800-352-6776**.

Elanco Products Company
A Division of Eli Lilly and Company
Lilly Corporate Center
Dept. E-455, Indianapolis, IN 46285, U.S.A.
Rubigan®—(fenarimol, Elanco)
Daconil 2787®—(chlorothalonil, SDS Biotech)



Circle No. 113 on Reader Inquiry Card

Dollar spotless.

**Dollar for dollar, nothing controls
dollar spot better than Rubigan®.**







A quality cut isn't the only thing it's designed to leave behind

Make no mistake.

The John Deere 756 and 856 are turf mowers first. Good ones. But what makes these two mowers even more attractive is their ability to do more than cut grass.

With the rear cutting unit removed (a job that takes less than 5 minutes), the 756 and 856 can do extra duty carrying rear-mounted implements.

Both feature Category 1 3-point hitch capability and drawbar. So, when needed, you can quickly put attachments like aerators or spreaders to work.

For mowing, the 756 and 856 both feature three 30-inch cutting units. All are hydraulically driven to deliver better quality cuts in long grass, wet conditions, or over contoured terrain. Places where ground-driven reels fall short.

Individual control of left, right, and rear cutting units also makes them perfect for areas where mowing around obstacles is a must.

Talk to your John Deere distributor today for more information on these multifunctional mowers. Or, write John Deere, Dept. 956, Moline, IL 61265 for a free brochure on all of John Deere's Golf and Turf Equipment.



The 756 and 856 both feature a Category 1 3-point hitch capability to carry attachments like the John Deere 206 Spreader or 260S Shatter Aerator.

Standard drawbar on 756 and 856 allows you to pull implements like the John Deere 140S Shatter Aerator.



**Nothing Runs
Like a Deere®**



LANDSCAPE MANAGEMENT

Formerly WEEDS TREES & TURF



25

25 COVER STORY: COOL-SEASON INSECT CONTROL GUIDE

Here's what's new in cool-season insect control: Triumph has finally received a label; diazinon can no longer be used on golf courses; and nematodes may control insects biologically.

34 NOT SO FAST

Opinions on green speeds vary as much as the management practices themselves. In the following, a few superintendents reflect on the trials and tribulations of managing greens in the face of pressure from players.

40 A GUIDE TO LAWNGRASSES

Confused about which new turf varieties will work best for home lawns? The executive director of The Better Lawn and Turf Institute tells what to look for in choosing good grass.



34

48 DISEASE GUIDE FOR COOL-SEASON TURF

No fungicide offers a complete spectrum of turf disease control. But, for most diseases, a range of reliable products is available and (in spite of enormous development costs), the introduction of new materials continues.

56 VALUING YOUR COMPANY

If you are thinking about selling your landscape or lawn care company, how do you determine how much to ask? Or to expect from the potential buyer? These formulas should help you get in the ballpark, anyway.

DEPARTMENTS

6 NEWS/TRENDS

8 GREEN INDUSTRY NEWS

18 SHORT CUTS

21 ATHLETIC TURF

60 ON DESIGN

62 INSURANCE INSIGHTS

64 RESEARCH UPDATE

68 JOBTALK

70 PROBLEM MANAGEMENT

72 PRODUCTS

82 CLASSIFIED

91 AD INDEX

92 OUTLOOK



ON THE COVER
Japanese beetle
larvae feeding at
the soil-thatch
level and sod
webworms on
thatch, by Dr.
Harry Niemczyk

LANDSCAPE MANAGEMENT (ISSN 0894-1254) is published monthly by Edgell Communications, Inc. Corporate and Editorial offices: 7500 Old Oak Boulevard, Cleveland, Ohio 44130. Advertising Offices: 7500 Old Oak Boulevard, Cleveland, Ohio 44130, 111 East Wacker Drive, Chicago, Illinois 60601 and 3091 Maple Drive, Atlanta, Georgia 30305. Accounting, Advertising Production and Circulation offices: 1 East First Street, Duluth, Minnesota 55802. Subscription rates: \$25 per year in the United States; \$35 per year in Canada. All other countries: \$70 per year. Single copies (pre-paid only): \$2.50 in the U.S.; \$4.50 in Canada; elsewhere \$8.00; add \$3.00 for shipping and handling per order. Second class postage paid at Duluth, Minnesota 55806 and additional mailing offices. Copyright © 1988 by Edgell Communications, Inc. All rights reserved. No part of this publication may be reproduced or transmitted in any form or by any means, electronic or mechanical including photocopy, recording, or any information storage and retrieval system, without permission in writing from the publisher.

POSTMASTER: Send address changes to LANDSCAPE MANAGEMENT, P.O. Box 6198, Duluth, Minnesota 55806.

BPA ABP **EDGELL**
COMMUNICATIONS

THE ORTHENE[®] MACHINE PROTECTS TURF BOTH WAYS.

**IT'S
MEAN.**

Blasts
sod webworms,
mole crickets,
and fire ants.



Continues to
work systemically
by remote control.

Sprayable by
vehicle or on foot.

Gives effective,
broad-spectrum
control of
armyworms,
leafhoppers and
greenbugs.

**IT'S
MILD.**

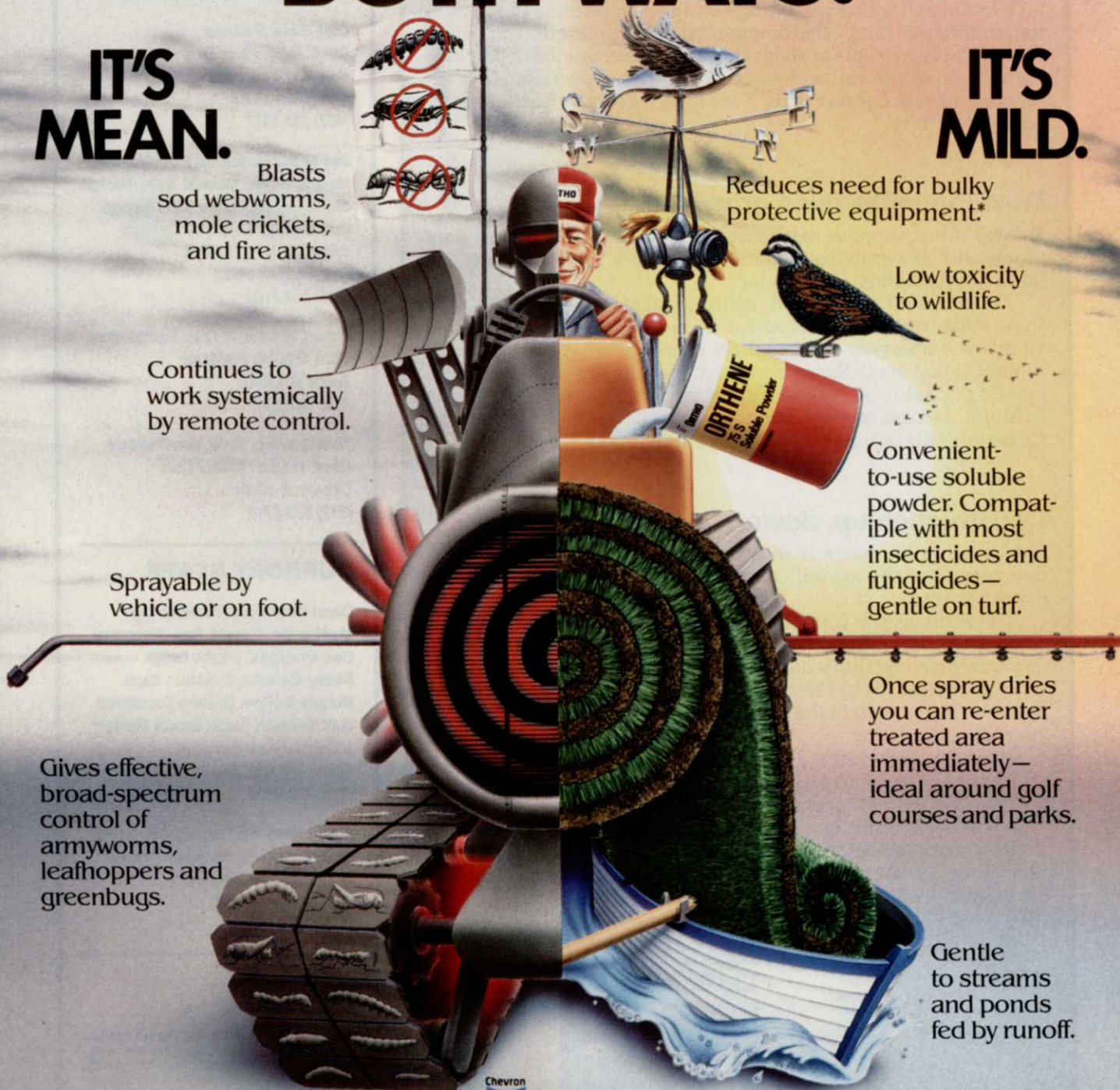
Reduces need for bulky
protective equipment.*

Low toxicity
to wildlife.

Convenient-
to-use soluble
powder. Compat-
ible with most
insecticides and
fungicides—
gentle on turf.

Once spray dries
you can re-enter
treated area
immediately—
ideal around golf
courses and parks.

Gentle
to streams
and ponds
fed by runoff.



*Refer to state regulations.
Avoid accidents. For safety, read the entire
label including precautions. Use all chemicals
only as directed. Copyright © 1988 Chevron
Chemical Company. All rights reserved.



ORTHO
Chevron Chemical
Company

ORTHENE[®]
TURF, TREE & ORNAMENTAL SPRAY

Industry needs to join forces

■ Words from Larry Scovotto, executive vice president of the American Association of Nurserymen:

"A great deal of work needs to be accomplished on behalf of the landscape industry. The residential landscaper, the landscape contractor and the interior landscaper need to join forces in a unified business and marketing effort to make the commercial sector and the general consumer more aware of the value and necessity of landscaping.

"On the national level, there is a big job to be done in residential, commercial and governmental business promotion on behalf of landscaping. People at all levels need to be educated to perceive both the need and value of landscaping. The expectation of landscaping throughout our daily lives must become a part of a new national culture."

Governmental sales growing?

■ Sales of turf supplies to landscape managers in the government sector will be a growing area in the next few years, according to James I. FitzGibbon of Lesco Inc.

"Government, school and institutional sales has the potential to be a big revenue-producer for us in the near future," he told company employees and suppliers recently.

FitzGibbon made the comments at the company's annual sales meeting in Sebring, Fla. which featured two days of trade show exhibits. Seminars were conducted by Ciba-Geigy, American Cyanamid, Elanco, Hoechst-Roussel and Mobay.

Construction up, down

■ A construction boom is seen on college campuses in the next five years, but the overall construction outlook for 1988 doesn't appear as rosy.

According to *The Chronicle of Higher Education*, "a survey of college planners found that about 60 percent saw the need for new or modernized facilities on their campuses as 'extremely urgent' or 'very urgent.'" Why? Because the facilities built during the first post-war baby boom in the 1960s are reaching the end of their 25-year life expectancy.

However, the overall 1988 construction picture is not good, according to George Christie, vice-president and chief economist for McGraw-Hill Information Systems. "Lower interest rates, more than anything else, will make the difference between a shallow and a steep decline of construction activity" this year. Projection is that the total 1988 construction contract value will drop three percent lower than last year's \$248.4 billion.

LM Editorial Staff



Jerry Roche



Will Perry



Jeff Sobul

EDITORIAL STAFF

Jerry Roche, Editor

Will Perry, Managing Editor

Jeff Sobul, Associate Editor

Office: 7500 Old Oak Blvd.

Cleveland, OH 44130

(216) 243-8100

MARKETING STAFF

Dick Gore, Publisher

Office: 455 E. Paces Ferry Rd.

Suite 324

Atlanta, GA 30305

(404) 233-1817

Jon Miducki, National Sales Manager

Marsha Dover, Midwest Sales Manager

Gloria Cosby, Eastern Sales Manager

Bob Earley, Group Vice President

Office: 7500 Old Oak Blvd.

Cleveland, OH 44130

(216) 243-8100

Robert Mierow, W. Coast Representative

Office: 1515 NW 51st Street

Seattle, WA 98107

(206) 783-0549

Tom Greney, Senior Vice-President

Office: 111 East Wacker Drive

Chicago, IL 60601

(312) 938-2344

SUPPORT STAFF

Carol Peterson, Production Mgr.

Marilyn MacDonald, Prod. Supervisor

Deb Georges, Graphic Design

Becky Gothner, Circulation Super.

Bonnie DeFoe, Directory Coordinator

Gail Kessler, Reader Service Manager

Office: 120 West Second St.

Duluth, MN 55802

(218) 723-9200

David Komitau, Graphics Coordinator

Ted Matthews, Promotion Director

Office: 7500 Old Oak Blvd.

Cleveland, OH 44130

(216) 243-8100

EDGEHILL
COMMUNICATIONS

Robert L. Edgell, Chairman; Richard Moeller, President; Lars Fladmark, Executive Vice President; Arland Hirman, Vice President/Treasurer; Thomas Greney, Senior Vice President; Ezra Pincus, Senior Vice President; Joe Bilderbach, Vice President; James Gherna, Vice President; George Glenn, Vice President; Harry Ramaley, Vice President.

WE BUILT OUR MOWER ON THE THEORY THAT THE EARTH IS ROUND.

One great discovery deserves another. We call ours the Kubota F2000 front mower.

With a flip of a lever you're in 4-wheel drive, making fast work of those nooks, crannies, curbs and curves you can't landscape into submission.

Add front wheel differential lock, a 20-horsepower diesel engine, and travel speeds up to 9.5 mph, and it flies in the face of rain, snow and mud. With Kubota-like ease.

It has a hydrostatic transmission to spare

© 1988 Kubota Tractor Corporation

you the trouble of clutching. Rear-wheel power steering and independent front brakes for precision maneuverability. And your choice of 60" or 72" mowers, a sweeper or snowblower. All lifted hydraulically.

Next time your turf throws you a curve, let our F2000 straighten it out.

Send for our free Grounds Maintenance Equipment Guide, by writing to Kubota Tractor Corp., P.O. Box 7020-A, Compton, California 90224-7020.



 **KUBOTA**
Nothing like it on earth.

Circle No. 118 on Reader Inquiry Card

GOLF

Keeping your course secure

Vandals used to be a problem at Chicaw Country Club in the Memphis, Tenn., area. No longer.

Jim Harris, Chicaw superintendent, has some tips on how to keep undesirables off golf courses, especially in urban areas. They focus on "preventing rather than apprehending and prosecuting."

- If an incident takes place and the culprit is not apprehended, keep it out of the media. This takes away his satisfaction.

- Have members keep valuables at home or in the locker. A number of players on his course had been robbed during rounds.

- Hire highly visible, uniformed security guards.

- Cover drain ducts with grates to keep people from crawling in through them and enclose the course in fencing with barbed wire on top if possible.

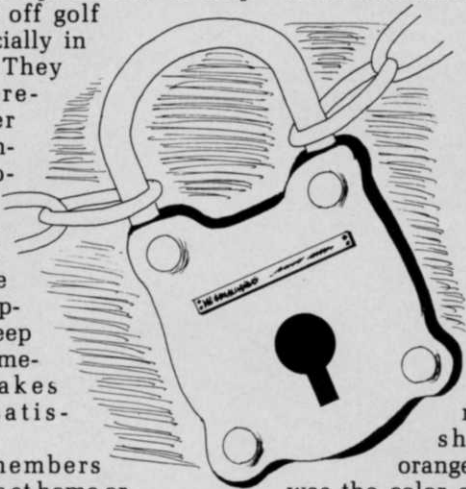
- Make sure everyone on the

course can be identified: members, maintenance crew and caddies. Uniforms for maintenance crews are a good idea, Harris says. Question any unaccounted for people on the course.

- Control all course entrances and hire 24-hour security for the front gate, closing almost all the gates.

There are, of course, some problems in taking these measures.

"Locked gates meant vendors had to go to the front office and then be let in," Harris says. Also, the pro shop couldn't sell orange shirts because this was the color given to the maintenance crew.



COMING IN JUNE

- Aquatic weed control
- Warm-season disease guide
- Aerification/dethatching



Dr. Robert Shearman

RESEARCH

Potassium prominence growing in turf care

As more research is conducted, results are showing more benefits of potassium use.

Within the turfgrass plant, potassium helps with sugar transporting, starch formation and enzyme activity. It also influences the opening and closing of stomata.

Studies conducted at the University of Nebraska on Fylking Kentucky bluegrass show that potassium increased root density and depth. "With increased potassium, wilting tendency is lower because of the decreased water use rate and deeper rooting," explains Robert Shearman,

continued on page 18

LANDSCAPING

'Million Dollar List' led by Environmental

Sixty-seven companies made Lawn Care Industry's second annual Million Dollar Mowers List, representing more than \$170 million in mowing/management revenue in 1987.

Mowing/management revenue is that which is billed for mowing, trimming and clean-up services. Billings specifically for chemical applications, landscape installation, design and tree/shrub care are not included.

Fourteen companies joined the list this year. Two companies dropped off. Environmental Care (Calabassas, Calif.), The Brickman Group (Long Grove, Ill.) and Lancaster Landscapes (Arlington, Va.) held their respective first, second and third place rankings

LAWN CARE INDUSTRY

Serving lawn management and chemical lawn care professionals

from last year. The rest of the top 10: 4. Northwest Landscape Industries (Tigard, Ore.), 5. Oyler Brothers (Orlando, Fla.), 6. (tie) Maintain (Dallas, Texas) and Cagwin & Dorward (Novato, Calif.) 8. Las Colinas Landscape Services (Dallas, Texas), 9. AAA Lawn Industries (Tucker, Ga.), 10. (tie) Shearon Environmental Design (Plymouth Meeting, Pa.), Pampered Lawns (Houston, Texas).

The companies averaged approximately 20 percent growth over 1986.

Company representatives attribute the growth to a continually wider demand for their services.

"I think developers are more aware of the need for curb appeal, selling their project as the people are walking in the door," says Scot Davis of Davis Landscape Contractors.

"Maintenance is a market that's really growing," adds Wayne Richards of Cagwin & Dorward.

—Elliot Maras

LEGISLATION

Diazinon banned on golf courses, sod farms

Portions of the green industry were dealt a blow early in April when EPA administrator Lee Thomas ruled to immediately ban use of the insecticide diazinon on golf courses and sod farms. The chemical is still available for use on home lawns.

"The disappointing thing," said Zach Grant, GCSAA manager of government relations, "is that we were repeatedly assured by EPA there would be no immediate ban."

Thomas stated in a 50-page opinion that Ciba-Geigy presented "inadequate" data regarding the safety of diazinon on golf courses and sod farms. Ciba-Geigy is the primary producer of diazinon and the chief company involved in the fight to retain diazinon registration.

An earlier ruling amended diazinon's label to Restricted Use, which cut the previously-recommended application rate in half.

Ken Weinstein, a Ciba-Geigy attorney, stated: "The administrator has issued a final decision. (Ciba-Geigy)



Bill Liles



Doug Fender

has 60 days to appeal."

"We are assessing whether we want to file an injunction and take it to the U.S. Court of Appeals," added Bill Liles, director of specialty product sales for Ciba-Geigy.

It should be noted that golf courses and sod farms account for about 10 percent of all the U.S. diazinon use.

GCSAA government relations committee chairman Bill Roberts, superintendent at Lochmoor Golf Club in Grosse Pointe Woods, Mich., was miffed by the EPA ruling. "It's beyond me how EPA could cancel registration

on diazinon for golf courses and sod farms and leave it available to the landscape industry."

Doug Fender, executive director of the American Sod Producers Association (ASPA), was equally incensed. "The damage of losing diazinon is the loss of a very effective broad-spectrum insecticide," Fender said. "There are some other chemicals but probably not as broad spectrum. It's gonna hurt us."

GCSAA's Grant noted, however, that superintendents could find alternatives to diazinon. "One thing we're hoping is that Triumph (a lawn insecticide from Ciba-Geigy) gets labelled for golf courses," Grant said.

Fender further questioned the reasoning that attached sod farms to golf courses in the ruling. "One of the damning things in all of this is that (EPA) had an 18-year history of bird kills (related to the case) and none occurred on a sod farm," he said. "But they decided that birds would view sod farms the same as golf courses."

READERS RESPOND

How have the new postal rates affected your business?

Effective April 4, 1988, third class postal rates increased 25 percent. Despite the fact that the increase came after many spring direct mail campaigns, we asked some landscape managers what impact that would have on their direct mail marketing.



"Aside from the Yellow Pages, Chem Turf relies entirely on direct mail for its advertising. We're in the process of sending out a mailing of 10,000 pieces (contacted just after the rate increase) The added cost for the mailing is about \$1,000. We'll probably end up raising the basic service rates because of insurance, so we'll just incorporate the new postage rate into that."

—George Meeley
Chem Turf
Anaheim, Ca.



"We can't stop that. There's not a hell of a lot you can do about it. It's just going to be passed on to the consumer eventually. We did our direct mail already (cost: upwards of \$3,000) so we got the bulk of it out of the way. We're in a rural area and mailings work well for us, but we may have to go to one mailing and do more advertising in the other media. We try to maintain a good mix. TV is still the best."

—Steve Nuss
Highland Park Lawn
Grand Island, Neb.



"Every time something like this happens, it raises prices. Maybe not immediately, but when you figure it out at the end of the year, it contributes to a price increase. It all adds up."

—Bill Thornton
Thornton Landscaping
Maineville, Ohio

Sonar.[®] Weeds out your water without the worry.

Maybe you never thought you had a season-long solution to your aquatic weed problems. But now, Sonar can keep swimmers from getting tangled, fishermen from losing lures, boaters from ruining motors and property values from sliding into the lake.

**Sonar handles
weed-choked water.**

Sonar is an aquatic herbicide breakthrough. It controls many of your problem water weeds without worry. And it

handles them all season long. No going back for a second or third treatment. Sonar does it right the first time.

**Sonar won't restrict you like
other aquatic herbicides.**

When used properly, the Sonar label does not restrict swimming, fishing or drinking. So there is no need to stop using your water after treating with Sonar.

Apply Sonar whenever...

...weeds are a problem. In the spring,



summer, or fall. Treat early and keep weeds away, or treat late and clear them out. Whenever they grow, just use easy-to-apply liquid or pellets.

Apply Sonar wherever...

...water weeds grow. Golf course ponds. Canals. Private lakes. Even large recreation lakes. Sonar is ready to go to work.

Apply Sonar to water-spoiling weeds.

Knock them out of commission. All season long. And claim back your water

rights with the breakthrough aquatic herbicide that delivers full-season, broad-spectrum weed control. Sonar. See your Elanco distributor. Or call toll-free: **1-800-352-6776.**

Gently restores nature's balance.

Elanco Products Company
A Division of Eli Lilly and Company
Lilly Corporate Center
Dept. E-455, Indianapolis, IN 46285, U.S.A.
Sonar®—(fluridone, Elanco)



Circle No. 115 on Reader Inquiry Card



POTASSIUM from page 11

Ph.D. of Nebraska.

With this comes the ability to manipulate irrigation strategies, he says. Watering daily in light amounts lowered root density while watering deeply twice a week helped rooting. Adding potassium increased root density with both watering methods, Shearman says.

Recommendations are to apply potassium at equal rates with nitrogen. "Potassium uptake is proportional to nitrogen application," Shearman says. The lower the nitrogen application, the lower the potassium uptake.

"Potassium remains in the ionic form in the plant cell," says Shearman. He notes that evidence of potassium deficiency include older leaf tip and margin burn, reduced root and foliage growth and lower leaf tensile strength.

In addition, plants show an increased tendency to wilt and higher water use rate, which makes the plant more susceptible to stress. "In the end, it will affect the playability of golf turf," he says.

LM technical advisor Shearman spoke on potassium benefits at the Western Pennsylvania Turf Conference in February.

PESTICIDES

Kelthane returns to the shelves in 1988

Kelthane 35 miticide from Rohm and Haas is returning this year for use on ornamentals, flowers and turf, the company announced. EPA restored registration on Dec. 31, 1987.

EPA originally withdrew registration in 1986 because of DDT-related impurities in the miticide, according to the company. Concern arose over the affects of the miticide on birds. However, after an environmental impact study of Kelthane products, EPA concluded that the miticide posed no unacceptable risk to avian species.

In complying with EPA requirements, Rohm and Haas invested in manufacturing improvements to keep DDT-related impurities in Kelthane production under 2.5 percent, according to the company.

TURF

Is biological disease control imminent?

If research continues at its current

rate, dollar spot might be controlled by a bacterium, not a chemical. "I think there will be a breakthrough soon," says Lee Burpee, Ph.D., at the University of Guelph in Ontario, Canada.

Burpee defines biological control as "the suppression of a plant disease through activity of an organism other than man." Biological control falls into two categories:

1. The application of an organism to a plant, such as a bacteria, fungi or virus.

2. The manipulation of the soil and plant environment to enhance the development of suppressive microbes.

Burpee's research has focused on bacterium control of dollar spot and fungi control of snow mold. Burpee tracked down the fungus by finding what appeared naturally on turf leaves.

"What you may be seeing is suppression in the field," Burpee says. "It could be worse without the fungus."

With the fungus, Burpee got a great deal of disease suppression. "There wasn't a significant difference from the use of a chemical control."

The future of biological control is strong. The two areas for improve-

THE ATTRACTION IS

Get your hands on any Shindaiwa pro model trimmer or brushcutter, and you'll be hooked.

Because whether you're working out in the field, along the highway or on the golf course, you'll find every model combines lightweight design and rugged dependability to cut the toughest job down to size. Time after time after time.

With proven features such as aircraft aluminum tubing for maximum strength, minimum weight. A transistor ignition system for easy starting. The world's most advanced cutting attachments, including a cast-aluminum fixed line head as well as fully automatic heads. A vibration isolation design to minimize fatigue. And tough two-cycle engines that make Shindaiwa, pound for pound, the most powerful



ment over current research, according to Burpee, are to select better strains of microbes and to improve formulations.

"If we collect enough strains, we'll probably find some that are better than others," he says. Right now, the fungus is applied through pellets about the size of a sulfur-coated urea pellet. They are moistened, then applied to the plant. The fungus stays alive within the dry pellet.

"We hope to replace some of the materials lost from the market in the past few years.

Burpee spoke at the Canadian Golf Course Superintendents show in Toronto.

INDUSTRY

Lawn Doctor hosts 500 franchisees

About 500 Lawn Doctor franchisees, employees and their guests started off the 1988 season with three-day seminars designed to boost productivity.

Seminars were held in Las Vegas (Jan. 19-21) at the Golden Nugget and Atlantic City (Feb. 2-4) at the Trump Plaza.



Ewald Alstadt, Lawn Doctor field representative supervisor, conducts a workshop on servicing optional sales, one of the nine different workshops that attracted nearly 1,100 attendees at the Lawn Doctor eastern regional seminar.

"We changed from small meetings throughout the 23 states in which we operate," said Russell

Frith, president and CEO, "to two large meetings."

The meetings, he said, "give our

S PURELY PHYSICAL.

equipment around. (Our model T-25, for example, generates 1.4 hp from just 24.1 cc.)

All of which explains why Shindaiwa has become the industry standard for excellence.

So go ahead and give any model a test. Really get physical. We can take it.

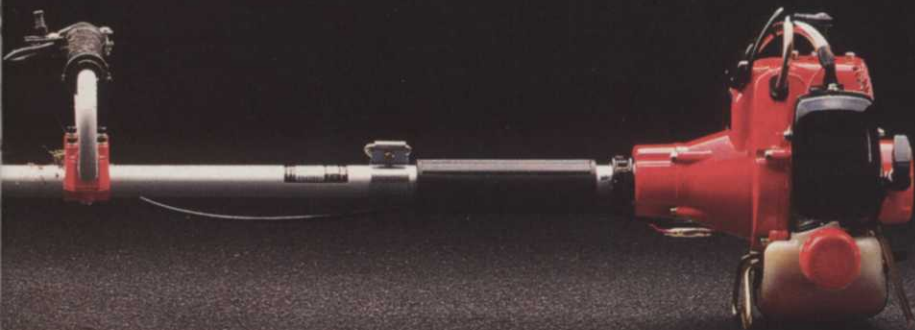
Contact your local Shindaiwa dealer.
Or call 800-521-7733.

LOVE IT. OR YOUR MONEY BACK.

Buy any Shindaiwa pro model trimmer or brushcutter. Put it to work for seven days after the date of purchase. If in that time you are not completely satisfied — for any reason — just return it to your dealer for a complete refund. For more details see your dealer.

shindaiwa

WE SIMPLY MAKE THEM BETTER.





Landscape Concepts is proving to Houston property managers that immaculately manicured premises are the best advertisements in the world to attract new tenants and investment capital.

Left to right: Gary Stovall and Vincent Morales, Jr., owners of Landscape Concepts, show Everett Mealman, president of PBI/Gordon Corp., their handiwork at Houston's Columbia Centre.

This Houston landscaper uses Pestroy® to reduce labor & insecticide cost.

BROAD SPECTRUM INSECTICIDE

...and to prove that Pestroy can deliver these same benefits to you, we are making a special introductory offer of a \$100-value SP-1 Sprayer for only \$25 when you buy Pestroy.

Everett Mealman, President
PBI/Gordon Corporation

Landscape Concepts in Houston, Texas discovered Pestroy insecticide several years ago during their struggles to cope with a changing business climate.

Historically, Landscape Concepts, which is owned by Gary Stovall and Vincent Morales, Jr., concentrated exclusively on professional landscape design and installation. As a result, an impressive percentage of Houston's most prestigious suburban office complexes and residential clusters owe

their exterior charm to Landscape Concepts.

"The reservoir of new prospects seemed bottomless," says Stovall. "Like most other Texans, we thought that the birth of new construction would go on forever."

"But things changed very abruptly in 1984," says Morales. "Not only did new construction stop, but the newly completed projects found themselves in an overbuilt climate."

Both Landscape Concepts and their best customers were between a rock and a hard place.

The obvious solution was for Landscape Concepts to convert from design and installation to maintenance. It goes without saying that premises needed to sparkle to attract new tenants. It also goes without saying that this sparkle needed to be maintained with maximum efficiency in deference to the economic climate.

And thus it was that Landscape Concepts started to focus on maintenance, indeed on the total landscape concept, not only to preserve their own cash flow but also to help their friends in real estate management keep up the level of exterior appearance that is necessary to attract new tenants and investors.

"Efficiency became our middle name," says Stovall. "We measured everything in terms of the bottom line. It caused us to pioneer the use of



The reflection of the sun off a glass building creates temperatures in Houston that insects love and, if left untended, they'd ruin these Hawthornes. But a Landscape Concepts workman knocks them out with Pestroy, much to the delight of Morales, Mealman and Stovall.



Everett Mealman, center, shows Stovall and Morales the SP-1 sprayer that is being offered to introduce Pestroy. "We already have 20 of these sprayers," says Morales. "And now we have 21," laughs Stovall, "because we're never going to give this one back."

Embark® PGR to reduce mowing costs; the use of Atrimmec® Plant Growth Regulator to reduce trimming costs; and the use of Pestroy to reduce insecticide costs."

"Pestroy is the only insecticide we use," says Morales. "It has such a broad spectrum that we do not need to spend time and money tank mixing it with other insecticides in order to achieve control."

"Our major problems are bagworms on junipers, and aphids on photenias . . . and Pestroy really does a number on them."

What universities say about Pestroy

Over a period of eight years, the efficacy of Pestroy has been compared to other insecticides at universities and experimental stations in the U.S.A. These studies clearly show that Pestroy is superior for controlling the following insects in certain trees and shrubs: Bagworm, Balsam Gall Midge, Citrus Mealybug, Citrus Whitefly, Eriophyid Mite, European Pine Sawfly, Fall Cankerworm, Forest Tent Caterpillar, Gypsy Moth, Hawthorn Lacebug, Pine Needle Scale, Rose Aphid, Southern Pine Beetle, Southern Red Mite, Yellow-necked Caterpillar, and many other economically important insects and mites.

Why landscape managers like Pestroy

Pestroy is surely the most rapidly grow-

ing insecticide in the U.S.A. today. It isn't surprising when you know the facts.

. . . Pestroy has such a broad spectrum. In most instances, it is the only insecticide you'll ever need. Thus you can eliminate the expense of tank mixing several insecticides in order to get control.

. . . Pestroy requires such a small amount of active ingredient; it does not accumulate in plants, water and soil; it is relatively safe to pets and birds. Thus it is an ideal insecticide for office complexes and residential clusters where there are numerous people, pets, and birds.

. . . Pestroy is so effective. It has been marketed worldwide for many

years under the name Sumithion, but it was only four years ago that PBI/Gordon brought it to the U.S.A. Consequently, while many insecticides are petering out because of insect immunity, Pestroy is fresh and ready for the battle.

Special introductory offer

We are confident that, once you try Pestroy, you'll use it from then on. So, to help you decide to try your first gallon, we're offering you a \$100-value SP-1 Sprayer for only \$25 when you buy Pestroy.

If you have any questions about Pestroy or the sprayer, call us toll-free.

Toll-free 1-800-821-7925

In Missouri, 1-800-892-7281

Get this \$100-Value Sprayer for \$25 when you buy Pestroy.

- Totally sealed diaphragm (up to 70 PSI pressure).
- Four-gallon capacity.
- Large 6-in. fill opening.
- Built-in carrying handle.
- Check valve in lid.
- Brass wand and nozzle. (Variable cone).



To get this \$100-Value SP-1 Back-Pack Sprayer for only \$25.00, buy one gallon or more of Pestroy from your distributor between now and October 1, 1988 and send us proof of purchase (a sales receipt). Limit one offer per customer. No requests honored after October 31, 1988. Please include your name, address and your check for \$25.00; mail them to PBI/Gordon at the address below.

G pbi/gordon CORPORATION

1217 WEST 12th STREET
P.O. BOX 4090
KANSAS CITY, MISSOURI 64101

PESTROY®

Pestroy® and Atrimmec® are registered trademarks of PBI/Gordon Corporation.
Embark® is a registered trademark of 3M.
Sumithion® is a registered trademark of Sumitomo Chemical Company, LTD.

© PBI/Gordon Corporation, 1988.

BROAD SPECTRUM INSECTICIDE
703-488

SHORT CUTS

BORN AGAIN...Bob Peterson, after 21 years with E.F. Burlingham and Sons, has decided to start his own business. When Peterson's good friend **Miller Ritchie**, a former president of Pacific University, asked Peterson why he doesn't retire to play golf and travel, the reply was: "I'm a lousy golfer, and I've traveled over a million miles by air. For my new company, I'm still traveling all over the U.S. I don't need to retire to travel!" Says Dr. Ritchie, "I think he's hooked on the seed business."

ASK YOUR NEIGHBOR...It may sound a bit corny, but **Don White**, Ph.D., of the University of Minnesota told his audience at the Canadian Golf Course show to turn to the person sitting next to him or her and ask, "What have you learned about turf in the past year?" Everyone came away with even more turf knowledge. **LANDSCAPE MANAGEMENT** learned that the pesticide/lawn care controversy is as rampant in Canada as it is in the U.S.

THIS MONTH'S STARS...A tip of the **LANDSCAPE MANAGEMENT** cap to **Jim Watson** of the Toro Co. and **David Minor** of Minor's Lawn Care, Fort Worth, Texas. Watson was named winner of the most recent Fred V. Grau Turfgrass Science Award for significant career contributions in turf science. The award was given by the Crop Science Society of America. Minor, meanwhile, appeared in the December 1987 issue of *Inc.* magazine for having one of the 500 fastest-growing private companies in America. Minor's Lawn Care ranked No. 446 with sales growth of 572 percent from 1982 to 1986. Minor's was founded in 1980 and finished 1986 with sales of \$1.4 million.

PVP FOR AN ALL*STAR...A plant variety protection certificate was awarded to All*Star perennial ryegrass. Certificate No. 8300059 was awarded to International Seeds, which has sold international marketing rights for All*Star to J&L Adikes. All*Star, which contains insect-resistant endophytes, is also marketed by Jacklin Seed, Vaughan's Seed and Rothwell Seed in Canada.

A GOOD FOLLOW THROUGH...GCSAA and the Professional Golf Association has begun a cooperative effort to get golfers to replace divots, repair ball marks and rake bunkers. The campaign, with the theme "After you follow through, don't forget to follow through," is bolstered by the participation of pro **Tom Watson**. He is featured on a 17-by-22-inch color poster which is being distributed to all members of both organizations, about 25,000 total, according to **John Segui**, president of GCSAA. Notes **Jim Awtrey**, executive director of PGA, "Today's golfer must understand his responsibility to help maintain the conditions of the course." Four-color ads in various publications will support the posters.

people the opportunity to share common experiences with LCOs from throughout the country."

Talks by Lawn Doctor support personnel and guest speakers covered a number of subjects geared toward better business practice. Guest speakers included Fred Langley, regional manager of public affairs for Dow Chemical, and William Bleuel, Ph.D., of Pepperdine University.

AWARDS

Heyser receives county award

Heyser Landscaping, Inc., Norristown, Pa., received the Outstanding Land Development Award from Montgomery County in March. Heyser received the award for the Montgomery Hospital Expansion project done in 1987.

The company implemented a landscape design around a 600-space parking garage, street-level retail shops and the Montgomery Professional Building.

William Heyser recalls that the company had a space of sidewalk approximately 400 feet long and 25 feet wide to put beds in. The design allowed a minimum of five feet each on the curb side and store-front side of the beds for pedestrian traffic. In the process, Heyser took an area that could have ended up with some ordinary planting beds and injected some imagination into the design.

"The beds are all free form," Heyser says, no two alike, each with different types of plant material, some with boulders, mounds and benches.

Plant material included ornamental grasses, annuals, hybrid rhododendrons, various types of juniper, Japanese hollies, dogwoods and birch, among others.

Beds ranged in size from 10 to 12 feet wide and 45 feet long. "Beds were arranged so there would be easy access to shops," Heyser says. He and his staff studied pedestrian traffic patterns to determine the shape and pattern of the beds. "They're attractive for both pedestrians and hospital employees," Heyser says.

The project was completed in three stages over the course of about three weeks.

The Montgomery County Planning Commission began the annual awards program to stimulate better quality development. The Outstanding Land Development Award is given to the project that best implements site design techniques.

LM

Plan now to exhibit in

THE 3rd ANNUAL



Landscape Exposition

October 22-24, 1988

**Nashville Convention Center
Nashville, Tennessee**

**The Green
Industry's Most
Far-Reaching
Event**

Produced by

**EDGELL
EXPOSITIONS**

Sponsored by Landscape Management and Lawn Care Industry Magazines

Plan now to exhibit in

THE 3rd ANNUAL



Landscape Exposition

October 22-24, 1988
Nashville Convention Center
Nashville, Tennessee

**The Green
Industry's Most
Far-Reaching
Event**

Produced by

EDGE
EXPOSITIONS

Sponsored by Landscape Management and Lawn Care Industry Magazines

ATHLETIC TURF

ASTM to review field safety

The American Society of Testing Materials will hold a symposium on the safety of natural and artificial playing fields. Although the conference will take place in December, the deadline for submitting abstracts on research is June 1.

The purpose of the symposium is to provide a forum for technical information on artificial and natural playing surface characteristics and safety. ASTM is inviting researchers to present papers on physical and functional properties; construction; maintenance; safety; economics; research; injuries; and comparisons of surfaces. Priority will be given to papers emphasizing research, case studies and information on how to choose the most appropriate type of turf for a particular application.

Related topics include:

- Case studies of injury data relating to artificial or natural turf.
- Turf characteristics, selection and best use and safety most likely to be encountered in the end application; and interpretation of those results.
- Unusual testing programs that incorporate several of the various environmental considerations encountered.
- Research on turf improvements.
- Field test methods for determination of field safety.
- Maintenance recommendations for playing fields.

The symposium, to be held in Phoenix, Ariz., on Dec. 6, 1988, is being sponsored by ASTM Committee F-8 on Sports Equipment and Facilities.

For more information on submitting and presenting papers at the symposium contact: Theresa Smoot, ASTM, 1916 Race St., Philadelphia, PA 19103; (215) 299-5413 before June 1, 1988.

Hardness measurements continue

The task of quantitatively measuring the hardness of athletic fields continues. "When people can see a number, they can make a measurement," says Trey Rogers, a graduate student at Penn State University.

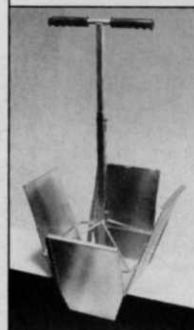
Studies conducted by Rogers are beginning to provide some data. From it, he came to some general conclusions:

- practice fields are harder than game fields;
- fields are harder inside the hashmarks;
- and there is a strong association between management practices, construction and hardness levels.

Rogers collected data at 12 test schools, testing two locations per field—inside and outside the hash marks. Testing was conducted in November 1986, March 1987, June 1987, August 1987 and November 1987.

Factors included in the testing were compaction, aerification, moisture, cutting height, vegetation, species, test hammer weight and thatch. Rogers presented preliminary data at the GCSAA Convention in Houston.

THE RIGHT TOOLS FOR THE JOB.



9" Turf Doctor

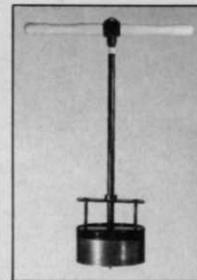
Replaces damaged sod quickly & cleanly. Provides "invisible" sod replacement.

Simply step 4 razor sharp blades into ground to remove wedge-shaped block of sod.

8" Turf Repairer

Cuts sod plugs fast & easy, to any depth, with simple twisting motion.

Eight-inch plug ejects with easy-to-use foot ejector plate.



30" Levelawn

Makes top soil or top dressing easier, more consistent than ever before. Perfect for removing small stones from soil, breaking up small clods of sand or loam, smoothing soil for planting.



Further details are in Standard's LANDSCAPE AND LAWN CARE PRODUCTS Bulletin LLC-88. Phone or write:

LANDSCAPE PRODUCTS DIV.

**STANDARD
GOLF** ProLine

Standard Golf Company, P.O. Box 68
Cedar Falls, Iowa 50613
319/266-2638

©1988, Standard Golf Company

SG-158



A Breakthrough



There's an armed struggle going on out there. Man versus machine. In this case, it's operators just like you battling it out with old-fashioned "pistol grip" type steering. But now there's a way for you to gain the upper hand. T-bar steering exclusively from Toro.

Toro's patented T-bar

steering system makes commercial walk behind mowers easier than ever to operate. So much so that users prefer it 8 to 1 over pistol grips.

The first area of superiority is manpower. All that squeezing and wrestling with pistol grips can fatigue even the heartiest operator. But with the T-bar, you simply push forward on the bar itself for easy, controlled mowing. That minimizes fatigue and keeps operators going longer.

T-bar steering also improves maneuverability. Now



In Arms Control.

you can get around any obstacle easier, faster and cleaner. Just move either end of the bar forward or backward and the machine changes direction.

T-bar steering offers you more control, too. That's because the T-bar handle itself is your traction control. Let go, and the handle



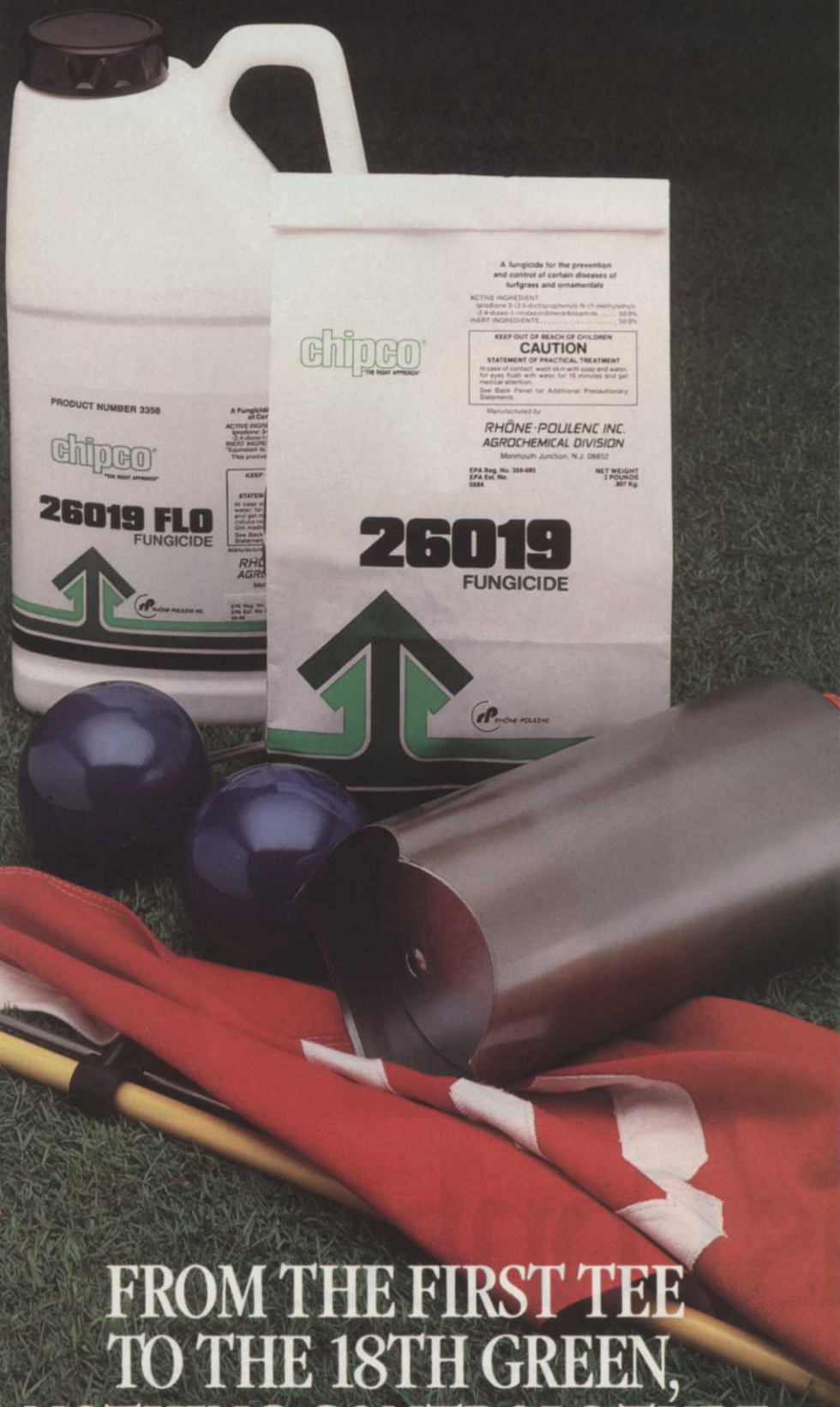
returns to neutral and disengages the traction belts.

The next time you see a Toro T-bar walk behind mower, stop and ask the operator how it performs. We expect you'll want to contact your local Toro distributor for a thorough demonstration. At which time you'll see firsthand just how important arms control is to your future. "Toro" is a registered trademark of The Toro Company. ©1987 The Toro Company.

TORO

The professionals
that keep you cutting.

Circle No. 143 on Reader Inquiry Card



FROM THE FIRST TEE
TO THE 18TH GREEN,
NOTHING CONTROLS TURF
DISEASES LIKE
CHIPCO® 26019.

FUNGICIDE

For season-long, full-course
protection, base your disease
control program on CHIPCO 26019
fungicide.

When it comes to season-long, full-course protection, more and more superintendents are building their disease control programs around CHIPCO 26019 fungicide. That's because CHIPCO 26019 fungicide offers more important features than any other turf fungicide.

First of all, CHIPCO 26019 fungicide provides unsurpassed control of all major turf diseases: Helminthosporium Leaf Spot and Melting Out, Dollar Spot, Brown Patch, Fusarium Blight and Red Thread. Plus, CHIPCO 26019 fungicide protects against Pink and Gray Snow Mold as well as Fusarium Patch.

Secondly, CHIPCO 26019 fungicide delivers the longest-lasting disease control you can buy. Just one application protects your turf up to four full weeks.

Based on cost per day of control, CHIPCO 26019 fungicide ranks as your best fungicide value. That makes it the ideal replacement for fairway disease control.

You'll also like the fact that CHIPCO 26019 is easy on the environment, with no phytotoxicity. And now you can choose between two convenient formulations—wetable powder or flowable.

This season, cover your course with the best in disease control. CHIPCO 26019 fungicide.

Rhone-Poulenc Ag Company, CHIPCO
Department, P.O. Box 12014, Research
Triangle Park, NC 27709.



CHIPCO®
26019

FUNGICIDE

 RHÔNE-POULENC AG COMPANY

Please read label carefully and use only as directed.
CHIPCO® is a registered trademark of Rhone-Poulenc.

Circle No. 137 on Reader Inquiry Card

COOL-SEASON INSECT CONTROL

Here's what's new in cool-season insect control: Triumph has finally received a label; diazinon cannot be used on golf courses; and nematodes may control insects biologically.

by Harry D. Niemczyk, Ph.D., Ohio Agricultural Research & Development Center

Finally, after more than 14 years of research and evaluation, Ciba-Geigy's Triumph 4E (isazofos) received EPA registration on Jan. 25. A restricted use product, Triumph may be used by certified applicators only.

The registration covers use only by commercial lawn pest control personnel on home lawns. Registration for use on golf courses is in progress but may be a year or two away.

University research has shown the insecticide to be rapidly effective against a broad range of pests, including grubs, chinch bugs, sod webworms, cutworms and billbugs. A maximum of one application per year is permitted for the 2 lb. AI/A rate. A maximum of two applications per year at least 60 days apart is permitted for the 1 lb. AI/A rate.

Status of diazinon

EPA administrator Lee Thomas has taken diazinon off the board for use on golf courses and sod farms, though it is still available for use on home lawns.

Thomas, last month, stated in a 50-page opinion that Ciba-Geigy (major producer of the product) presented "inadequate" data regarding the safety of diazinon on golf courses and sod farms.

At presstime, Ciba-Geigy was still considering a visit to the U.S. Court of Appeals, which would be the next step in the judicial process. (See "Green Industry News"—Ed.)

Nematodes for insect control

Two species of nematodes parasitic on the larval forms of insects such as sod webworms, cutworms, billbug larvae and grubs, continue to show promise.

The Biosis Co. of California, producer of the nematodes, reports continued progress in producing the nematodes and devising forms in which they can be shipped. Tests in Ohio in 1987 showed a single application in June gave 79 percent control of billbug larvae. This form of biological control appears to have real promise.

AD?

AD is an abbreviation for accelerated degradation, a phenomenon whereby microorganisms (fungi, bacteria, actinomycetes) adapt to the presence of pesticide residues to the point where they actually use the pesticide as a source of energy.

Research at OARDC/The Ohio State University, Wooster, Ohio, has confirmed that AD is, in large measure, responsible for the reduced effectiveness of Oftanol experienced by users of the product over the past two years. Investigations at OSU continue in order to determine how much the AD phenomenon affects the effectiveness of other pesticides used on turfgrasses.

Life cycle is still key

Knowing the life cycle of pests is at least as important as selecting an insecticide for their control. This guide points out the seasonal occurrence of some important cool- and warm-season pests to be alert for in 1988, when their vulnerable stages occur, and some suggested insecticides that may be used to control them. No endorsement of products is intended, nor is criticism implied for those not mentioned.



A golf course superintendent applies parasitic nematodes to the green.

continued on page 26

CALENDAR

Late Winter (March)

Chinch bugs and billbugs—In northern zones chinch bugs and billbugs both overwinter as adults in thatch or sheltered sites near buildings. They can become active during warm days in March. Infestations of hairy chinch bug and bluegrass billbug also occur in zoysia, Kentucky bluegrass and fine fescues.

Grubs—The larvae of this group of pests normally overwinter six inches or deeper in the soil. If spring comes early, grub activity can be expected along with skunks and raccoons which will tear up the turf searching for the grubs. Moles, which feed on grubs and earthworms, also become active at this time.

Black turfgrass ataenius—This golf course pest overwinters as an adult in the soil under debris in roughs or other protected areas. A few may be seen flying about on warm afternoons in early March. Usually this activity begins when crocus starts blooming and intensifies as the bloom of red bud appears.

Greenbug—The only stage of the greenbug known to overwinter in northern states is the egg. Shiny black eggs deposited the previous fall may be found adhering to grass blades, fallen tree leaves or other debris.

Sod webworms—The most common sod webworm species overwinter as larvae in the thatch or upper inch of soil. Feeding does not resume until hibernation (diapause) is broken by early spring warmth.

Spring

Chinch bugs and billbugs—As warm days of spring approach, movement of chinch bug and billbug adults increases rapidly. Generally, egg laying begins the first week



Pulling back the turf on a green can reveal hidden cutworms.

of May, but can begin in mid-April if spring arrives early. Occasionally adult billbugs can be seen on sidewalks on warm afternoons.

Generally, application of insecticides to prevent infestations of chinch bugs and billbugs should be completed by the first week in May in cool-season areas. Applications may begin as early as the last week of March. Such applications must be made before significant numbers of eggs are laid. This time may vary as much as a week or more depending upon the spring weather.

Grubs—Overwintered grubs return to the surface and begin feeding on turfgrass roots in April. Increased activity and damage from birds, moles, skunks and raccoons foraging on grubs can also be expected. Feeding by birds, mammals and grubs continues through May.

Treatment should be delayed until grubs are in the top one-inch of soil. Irrigation or rainfall should follow such applications to aid in moving the insecticides to the target grub as soon as possible.

Although milky disease products for control of Japanese beetle grubs may be applied anytime there is no frost in the soil, spring is a good time for such applications. The soil is open and frequent rains move the disease spores into the soil and thatch. Milky disease products are primarily effective against Japanese beetle larvae. Infection in other species is low.

Incidents of large grub infestations (larvae of June bugs) have been increasing in cool-season areas. Locations of such infestations should be identified because reinfestation is likely every three years.

Eggs are laid in May and June, therefore treatment should be made in late summer, early fall of that year or the next spring while the larvae are small. Later applications against full-grown larvae have given inadequate control.

Black turfgrass ataenius—Adults of the black turfgrass ataenius can be seen "at wing" in April and are often found in clipping catchers after early mowing of golf course greens. These adults begin laying eggs in early May, or about the time Vanhoutte spirea firs come into bloom. Diazinon, applied to fairways at this time, kills adults and prevents summer infestation of larvae. Check with local extension entomologists for precise time if needed.

A word of caution: diazinon applications

SUMMARY OF GRUB CONTROL TESTS IN OHIO - 1971-86¹

INSECTICIDE	LB AI/A	MEAN % CONTROL	(NO. OF ² TESTS)
ethoprop (Mocap)	5.0	92	(5)
isazofos (Triumph)	2.0	91	(15)
bendiocarb (Turcam)	2.0	85	(15)
isofenphos (Oftanol)	2.0	83	(33)
carbaryl (Sevin)	8.0	81	(9)
trichlorfon (Proxol)	8.0	80	(20)
diazinon	5.5	61	(12)
chlorpyrifos (Dursban)	4.0	34	(9)

¹ Includes Japanese beetle, *Cyclocephala* spp., *Phyllophaga* spp. only.

² Each test replicated 3 or 4x. Generally, treatments applied late summer or early spring. Irrigated (1/4-1/2 inch) after application, thatch - 1/2 inch, readings taken ca. 4-8 weeks after treatment. H.D. Niemczyk & K.T. Power.



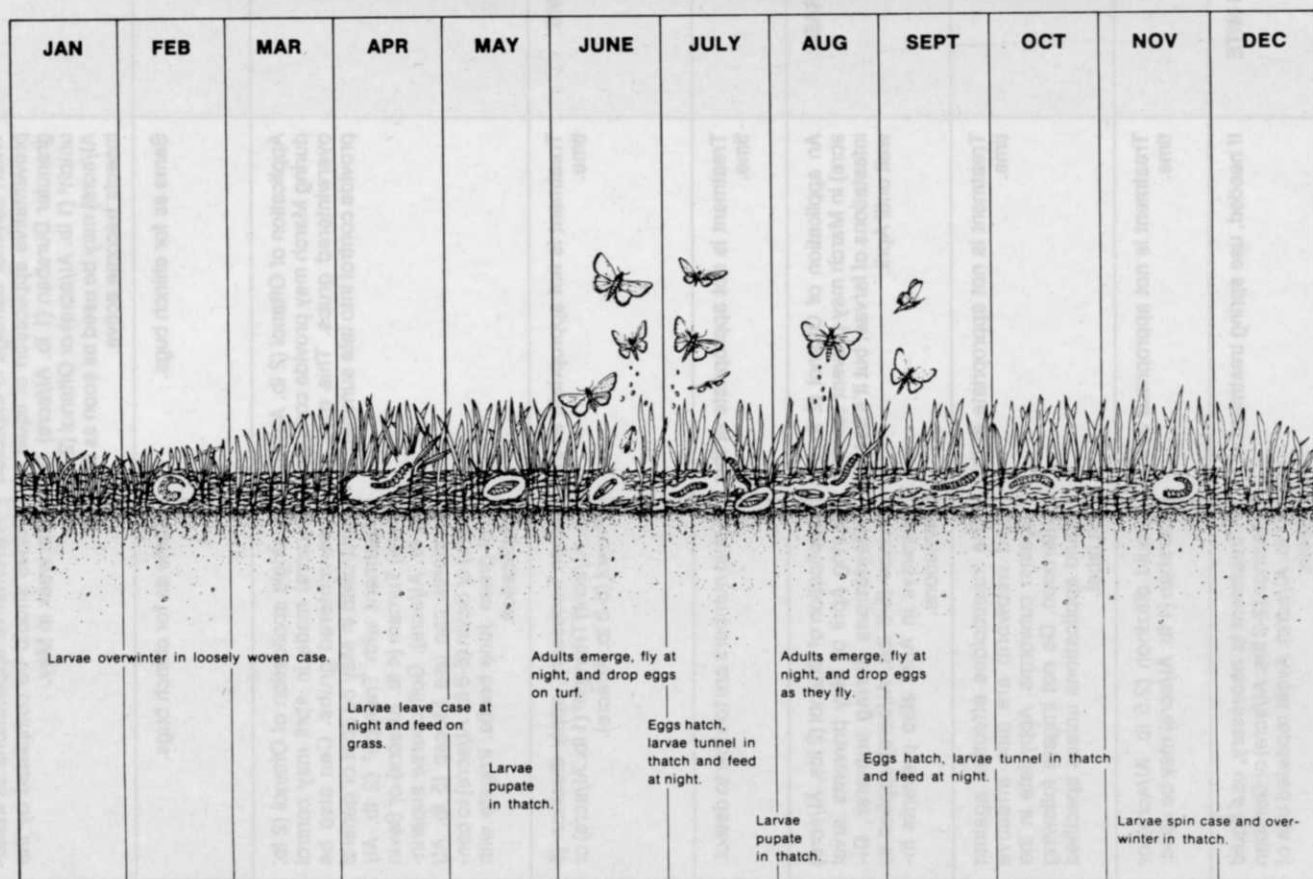
INSECT CONTROL GUIDE



COOL SEASON*	LATE WINTER (March)	SPRING (April-May)	SUMMER (June-Aug.)	FALL (Sept.-Oct.)
CHINCH BUGS	When summer damage is expected preventative application of liquid or granular Dursban (1 lb. A/acre) Triumph ¹ (1 lb. A/acre) or Otfanol (2 lb. A/acre) may be used as soon as the insects become active.	Preventative applications of insecticides should be completed by the first week in May.	Treat before injury is severe with Dursban (1 lb. A/acre), diazinon (2.5-5.5 lb. A/acre), Triumph ¹ (1 lb. A/acre), Sevin (6-8 lbs. A/acre) or other labeled insecticides.	Treat if necessary, but generally, infestation levels are not high enough to warrant using insecticides.
BILLBUGS	Same as for chinch bugs.	Same as for chinch bugs.	Treat infestations at same rates as grubs with diazinon, Turcam, Proxol or Sevin. Irrigate following application.	Treatment is usually not appropriate at this time.
GRUBS	Application of Otfanol (2 lb. A/acre) during March may provide control of overwintered grubs. This may not provide control into late summer.	A single application of Otfanol (2 lb. A/acre) made in April may control overwintered grubs. Can also be controlled in May by spot or general treatment with Triumph ¹ (2 lb. A/acre) Turcam (4 lb. A/acre) or Sevin (8 lb. A/acre). Golf course superintendents can use Moccap (5 lb. A/acre) or Sevin (6-8 lb. A/acre) to control green June beetle. Irrigate with application.	Existing infestations found in July or Aug. may be treated with Triumph ¹ , Proxol, Turcam, Otfanol, Sevin or Moccap (commercial turf only) at rates used in spring. Treat green June beetle with Sevin (6-8 lb. A/acre).	Treatment can be made as late as mid-September. Irrigate first if thatch or soil is dry.
SOD WEBWORMS	Treatment is not appropriate at this time.	When necessary, apply diazinon (5 lb. A/acre), Triumph ¹ (1 lb. A/acre) or Proxol (6-8 lb. A/acre).	Make application when larvae are present or two weeks after peak moth flight. Use Dursban (1 lb. A/acre), Triumph ¹ (1 lb. A/acre), diazinon (5 lbs. A/acre), Sevin (6-8 lbs. A/acre) or Proxol (6-8 lb. A/acre).	Larvae are small and cause little damage at this time. Treatment in September reduces population for next spring.
GREENBUGS	Treatment is not appropriate at this time.	Aphid numbers are too low to detect.	Use Orthene (1 lb. A/acre) or Dursban (1 lb. A/acre) or diazinon (2.5 lb. A/acre).	Severe infestations may occur as late as December. Use the same insecticides as in the summer.
BLACK TURFGRASS ATAENIUS	An application of Otfanol (2 lb. A/acre) in March may prevent summer infestations of larvae, but it's best to wait until April.	Application of Otfanol (2 lbs. A/acre) during April or May prevents larval infestations during summer. Diazinon (5-6 lbs. A/acre) applied to fairways in April also prevents infestations.	If preventative applications were not made, spot or generally treat with Proxol (8 lbs. A/acre), Turcam (2-4 lbs. A/acre), Sevin (8 lbs. A/acre) or Moccap (5 lbs. A/acre), as needed.	Undeveloped larvae die with frost.
CUTWORMS	Treatment is not appropriate at this time.	The insecticides effective against sod webworm are also effective against cutworms. Apply late in the afternoon. Do not irrigate following liquid applications unless specified on label.	Use Dursban (1 lb. A/acre), Triumph ¹ (1 lb. A/acre), Proxol (8 lbs. A/acre) or Sevin (6-8 lbs. A/acre). Do not irrigate following liquid applications unless specified on label.	Same as for summer.
COVER MITES	Treatment is not appropriate at this time.	Liquid diazinon (2.5 lb. A/acre) or Dursban (1 lb. A/acre) may be used.	Treatment usually is not necessary.	Treat as needed with liquid diazinon (2.5 lbs. A/acre) or Dursban (1 lb. A/acre).
WINTER GRAIN MITE	If needed, use spring treatment.	If treatment is necessary, use liquid diazinon (2-3 lbs. A/acre) or Dursban (1 lb. A/acre). Avoid repeated use of Sevin.	Treatment is not appropriate, since mite is in egg stage.	Treatment is not appropriate since mite is in egg stage.

* For use only by commercial lawn pest control personnel. A maximum of one application per year is permitted for the 2 lb. A/acre rate. A maximum of two applications per year at least 60 days apart is permitted for the 1 lb. A/acre rate.
 * See accompanying text for details; always follow label directions.

LIFE CYCLE OF THE COMMON SOD WEBWORM *PARAPEDIASIA TETERRELLA* (ZINCH)



may be toxic to waterfowl such as geese feeding on the treated turf.

Sod webworms—Overwintered larvae of the sod webworm begin feeding as soon as the grass begins to grow. Usually damage is insignificant, but areas that do not green up may be infested. These areas frequently have probe holes from starlings feeding on the larvae.

Moth flights begin in May in northern areas. Young larvae are usually present about two weeks after the spring moth flight peaks, so treatment of young larvae can be done in May in some areas.

Cutworms—Moths of cutworms begin laying eggs on golf course greens and other turf areas in the spring. These eggs hatch producing larvae that feed on grass blades during the night. The black cutworm is the most common species on cool-season turf.

While visible damage is uncommon on home lawns, damage can be significant on golf course greens in late May.

Greenbug—Greenbug eggs begin hatching as early as April, but significant infestations do not develop until later in the year. Greenbugs are also brought into the region from the south on upper air winds. Aphid numbers are too low to detect in lawns at this time.

Winter grain mite—Damage from this

mite is often first noted in April when turf areas are receiving spring fertilizer applications. Winter grain mites are identifiable for eight bright red legs and a dark body. By late May, the mites will have laid their eggs and died. Mites do not appear again until the eggs hatch in October.

Clover mites—Incidents of visible damage to home lawns are often seen in April in several Ohio cities and Denver, Col. Usually a nuisance pest in and around homes, the clover mite occurs in large numbers (5,000 per sq. ft.) across entire lawns and on turf next to building foundations. Symptoms of injury were the same as the winter grain mite. Turf next to foundations may be killed.

The clover mite has a slightly pink body and eight pale-colored legs. The first pair of legs are extremely long and protrude well out in front of the mite. The absence of bright red legs distinguishes the clover mite from the winter grain mite.

Summer (June-August)

Chinch bugs—Chinch bug eggs continue to hatch into June. Bright red nymphs with a center white band appear. The number of chinch bugs increases rapidly in June. Their populations peak in July and August, when northern lawns can receive severe

damage. This damage is often masked by summer dormancy of turf caused by drought. Hot, dry conditions are ideal for chinch bugs.

During August the nymphs molt into adults that mate, lay eggs, thus producing a second generation. Some northern areas have only one generation per year.

Billbugs—Bluegrass billbug larvae feed in grass stems during June and move to the plant crowns, roots and rhizomes during July. This feeding causes brown spots that frequently resemble the symptoms of some fungus diseases. Symptoms are also often masked when the turf is dormant from drought. The larvae usually move deeper into the soil under dry soil conditions. During late July and August the larvae burrow deeper into the soil to pupate and transform into adults.

Grubs—By June, grubs have stopped feeding and are in the pupal stage three to four inches in the soil. Beginning in mid-June and continuing through mid-July, the adults of various species emerge and burrow into the soil to lay eggs. Hatching and appearance of young larvae occur during July and August.

Extreme heat and drought during the summer may cause some grubs to move deeper in the soil. Under such conditions, irriga-

Back To Basics . . . Introducing The 1988 CL Series

New for '88

- Economical, "No Frills" design
- Available in 50", 60" and 72" cut
- Famous Kut-Kwick durability and safety



The CL Series is for Commercial/Lawn Users. Superior performances in both rough cut and refined mowing, at speeds to 11 miles per hour. Hydrostatic propulsion, 20 HP engine, low center of gravity, rear discharge "clamshell" deck, vertically articulating rider and big 23" steered wheel combine for added safety, operator comfort and control. The "CL" gives the commercial user a tough, low maintenance machine that mows better at top speed in either refined or rough conditions than other mowers at half the speed.

Kut-Kwick. More than forty years of experience building commercial mowers for professional users.

kut-kwick

P.O. Box 984
Brunswick, Georgia 31521
Telephone 912-265-1630

Call today for complete information.
Toll-free 1-800-248-5945
In GA. 1-800-592-5945

Circle No. 260 on Reader Inquiry Card

INSECT EXPERT OR NOVICE?

Quiz yourself or your crew to see how much training is needed.

1. All stages of chinch bugs, except eggs, damage turf.
true false
2. Generally, insect specimens sent to an entomologist for identification should be sent _____.
dry in formaldehyde in alcohol in distilled water
3. The rastral pattern of which of the following insects has spines arranged in the shape of a small "V"?
European chafer Japanese beetle Northern masked chafer
4. Sod webworms and cutworm moths lay their eggs _____.
at night early in the morning on bright days
5. Which of the following turf moisture conditions is most conducive to the development of damaging populations of chinch bugs?
excess adequate droughty
6. Turf with small or large damaged spots breaks off at the soil line when pulled, and shows evidence of a sawdust-like material at the base of the stem, probably was damaged by _____.
white grubs billbugs sod webworms chinch bugs
7. The rastral pattern of which of the following is scattered (no pattern)?
European chafer Japanese beetle Northern masked chafer
8. Liquid soap in water applied to turf is a good way to tell if the turf is infested with _____.
grubs billbugs cutworms chinch bugs
9. Bluegrass billbugs pass the winter as _____.
egg larva pupa adults
10. During January, the Japanese beetle is in which stage of development?
egg larva pupae adult
11. The chinch bug has _____ generations a year in your area?
one two three
12. The Japanese beetle completes its life cycle in _____ year(s).
one two three
13. The big-eyed bug is a _____.
pest predator parasite
14. The adult cutworm is larger than the adult sod webworm.
true false

Turn the page upside down for the answers.

ANSWERS: 1. True 2. in alcohol 3. Japanese beetle 4. at night 5. droughty 6. billbugs 7. Northern masked chafer 8. cutworms 9. adults 10. larva 11. one or two—You should know your area! 12. one 13. parasite 14. True
If you got:
14 right—Super!
13 right—Well done
12 right—Not bad
11 right—OK
less than 11—Training needed
Turn the page for the answers.

tion several hours before treatment and a thorough soaking afterward is advisable.

Black turfgrass ateniensis—Eggs laid by beetles during May hatch in June and the larvae immediately begin feeding on the turf roots and thatch.

From late June to mid-July, symptoms of injury include wilting in spite of irrigation. In July, larvae move deep into the soil, pupate and emerge as adults. These adults

lay eggs during August, producing a second generation in states such as Ohio. The second generation larvae are capable of damaging turf.

Sod webworms—Damage from sod webworm larvae occurs occasionally in most of the cool-season turf region. Injury is more common in midwestern states, usually in July and August. Older sod fields and heavily thatched turfs are good

candidates for infestation. There are generally one or two generations per year, depending upon the species.

Cutworms—Cutworm larvae continue to cause damage to golf course greens from June through August. These larvae pupate in the soil or thatch and emerge as moths that lay eggs for additional generations.

Fall armyworm—The fall armyworm is seldom a problem of cool-season turf.

Greenbug—Damaging populations of greenbug can occur from June through August. Populations and incidents of damage frequently vary from area to area even within a city.

Symptoms of injury include turf under the dripline of trees and in open areas having a burnt orange color. When symptoms are seen, numerous aphids (40 or more) may be seen on a single grass blade. Close examination of damaged turf is necessary because the aphids are small. If left untreated, a heavy infestation can kill the turf.

Fall (Sept.-Oct.)

Chinch bugs—In the northern U.S. the second generation of chinch bug is at peak numbers in September. Nymphs complete their development to adults in late October. Most chinch bugs overwinter in the turf, but some move to protected areas before winter.

Generally, infestation levels at this time are not high enough to warrant the use of insecticides. Early fall rains and infection by a parasitic fungus (*Beauveria* spp.) usually provide sufficient control.

Billbugs—During September, billbug adults that developed from summer larvae are often seen on sidewalks, driveways or other paved surfaces. Before winter, these adults seek shelter in thatch, along sidewalk edges or near foundations and overwinter there. Many, if not most, overwinter in turf.

In some areas (Cincinnati, Ohio) a partial second generation may occur. Larvae of this generation have been known to cause visible damage in September and October.

Grubs—Most species of grubs are in the third of their three stages of development and are feeding actively. When soil temperatures decrease in late October, the larvae burrow deeper into the soil to overwinter. If soil temperatures remain warm, larvae stay at the surface and continue feeding. Severely cold winters have little effect on survival.

Black turfgrass ateniensis—By September, adults of the current generation begin to fly into protected areas, such as golf course roughs, to overwinter. Larvae that have not completed development to adults before frost are killed.

Sod webworm—Northern sod webworm larvae are small and cause little if any damage in the fall. Late in the fall the larvae construct a cocoon-like shelter in which they overwinter.

Greenbug—Severe infestations of greenbug have been known to occur as late as the first week of December. Areas having a history of infestation should be re-examined when mild temperatures extend late into the fall. Heavily infested turf will not survive through winter. **LM**



THIS JULY 4th, CELEBRATE YOUR FREEDOM FROM CRABGRASS!

Acclaim® to the rescue.

Why battle crabgrass all season long? Now you can apply one rescue treatment in late June or early July—and get rid of crabgrass for good. The treatment? Acclaim® IEC Herbicide—the first truly effective postemergence herbicide for crabgrass and other grassy weeds in cool season turfgrasses.

Acclaim for show-off turf.

Acclaim kills crabgrass much more effectively than

the old postemergence arsenates—and it's a lot easier on turf. Even better, Acclaim generally requires only one treatment versus two or three arsenate treatments. Also, Acclaim allows you the flexibility to reseed within 24 hours—so by the time the crabgrass is gone, all you see is lush, beautiful turf.



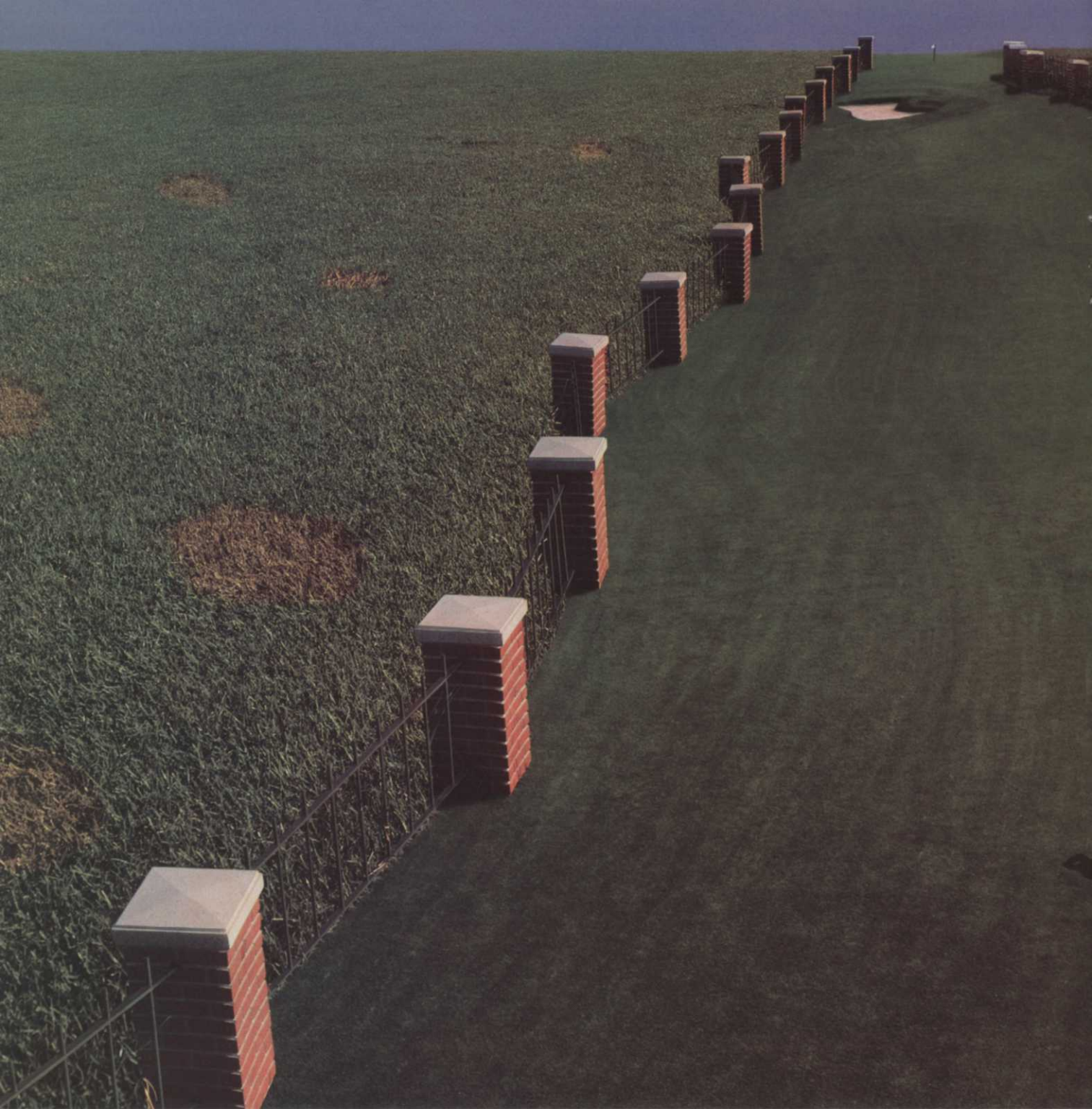
Read and follow label directions carefully. Acclaim and the name and logo HOECHST are registered trademarks of Hoechst AG. The name and logo ROUSSEL are registered trademarks of Roussel Uclaf S.A.

Hoechst
Roussel

ACCLAIM®
Because your turf is always on display.

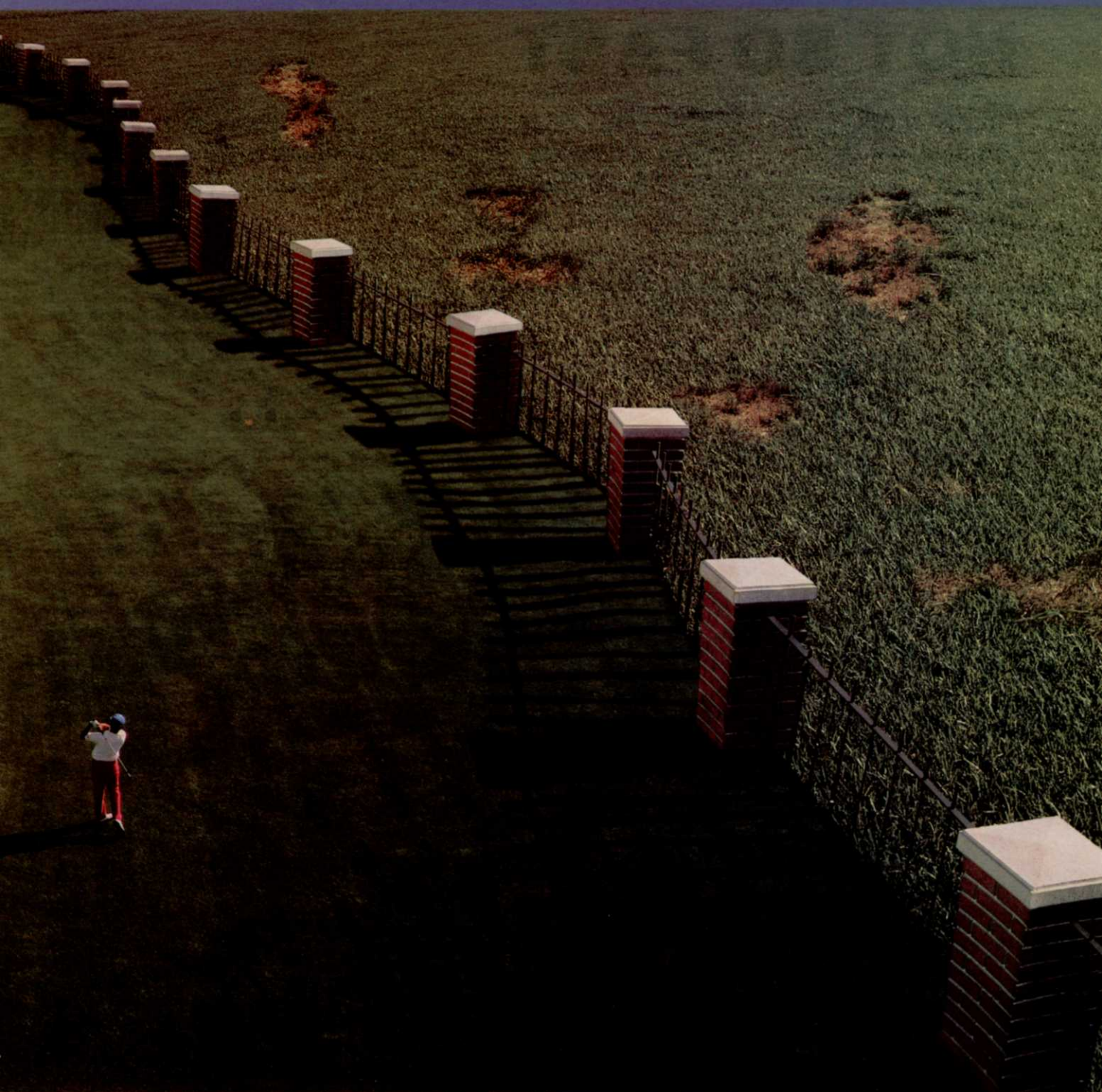
Circle No. 119 on Reader Inquiry Card

MAY 1988/LANDSCAPE MANAGEMENT 31



Keep your fairways
looking great.

44061



Golfers love to play on beautiful fairways. It's that simple. Which is why it's so important to keep your course in top shape. That means controlling diseases like dollar spot and anthracnose. And that means a program using BAYLETON[®] fungicide.

BAYLETON is taking care of more and more beautiful fairways because more superintendents are discovering

how long it lasts. How much they save in application costs by making fewer applications. And how good it makes them and their fairways look.

BAYLETON. Because golfers play favorites. Specialty Products Group, Box 4913, Kansas City, MO 64120.

BAYLETON is a Reg. TM of Bayer AG, Germany.

Bayleton

Mobay Corporation
A Bayer USA INC. COMPANY

Bayer



Circle No. 130 on Reader Inquiry Card

NOT SO FAST

Opinions on green speeds vary as much as the management practices themselves. In the following, a few superintendents reflect on the trials and tribulations of managing greens in the face of pressure from players.

by Jeff Sobul, associate editor



Superintendent Mike Phillips (standing) and assistant Carl Rygg use a stimpmeter to check green speeds at The Links at Spanish Bay, the only fine fescue putting surfaces in the U.S. They cut the greens at an uncommonly high $\frac{5}{32}$ of an inch.

Recent trends have sent golf course greens cutting heights down and green speeds up. But somewhere along the way, some people forgot about that little fellow, the grass plant.

Tired of being walked all over, the little green (and sometimes brown) plant started retaliating at the players who wanted those lightning speeds. Unfortunately, the superintendent was pretty much the recipient of abuse from plants and players alike.

The lower you cut turf, the more susceptible it is to disease and stress. Then, by reducing fertilization—as some courses did to improve speed—the plant is denied nutrients needed to sustain healthy growth.

Jim Hippely, superintendent at Salem (Ohio) Golf Club, provides a good example of what many supers face. “We mow at $\frac{1}{8}$ of an inch because the membership requests it,” he says. That, he adds, results in many sleepless nights.

Another Ohioan, John Spodnik at Westfield Country Club, finds himself in a similar situation. He also mows his greens at $\frac{1}{8}$ of an inch at member request. “The ‘hot 100’—June, July and August—puts a strain on the grass,” he notes. “Needless to say, the turf manager must perform accordingly at his best. Sometimes that is not good enough!”

Are superintendents being forced to worship the almighty stimpmeter? Or are they finding ways to keep the faith without offering sacrificial turfgrass?

Scott Niven at the Stanwich Club in Greenwich, Conn., seems to have found some middle ground. “We used to cut at $\frac{1}{8}$ of an inch, nine cuts a week,” he notes. “Greens were fast but deteriorated in quality. Values in excess of 10 on the stimpmeter were too fast to be fair on greens with slopes like mine.

“Now we cut at $\frac{9}{64}$ of an inch. Greens are a bit slower (8.5-9.5),” he says, “but healthier, better looking and easier to manage.”

Sometimes it's situational, with speeds and height varying according to the time of year or occasion. Such is

STAY AHEAD OF THE GAME.

The Jacobsen 7-Gang Hydraulic Ranger's high-production, tournament quality cut puts you acres ahead of the game and your golfers.

Get ahead, and stay ahead, with the 15' cutting swath of this rugged, hard-working pull behind. It cuts nearly 40% more grass than a 5-gang, yet it's every bit as maneuverable. And hydraulic-reel drive delivers a quality cut, even through heavy, wet grass or morning dew.

Plus, the Ranger leaves a good impression on your golfers instead of your turf. Its compact size and wide, high-flotation turf tires produce a lighter footprint than competitors—less than 10 PSI ground pressure. Team-up the Ranger with the Jacobsen G-20D turf tractor and you've got a high-production mowing system that's right at home on fairways, roughs, parks or schoolgrounds.

Any 42 PTO hp tractor can pull the Ranger, because it has a completely self-contained hydraulic system. The hydraulic pump mounts directly to

the tractor PTO so you can turn tighter, without any PTO universal joints to get in the way or damage. And fast, simple hookup/disconnect frees up your tractor for other chores.

Easy-reach, up-front electrical solenoid switches start and stop the reels, and provide reverse rotation for backlapping or high-production vertical mowing. Hydraulic lift levers let you mow with three, five, six or all seven reels, for cutting widths from 84" to 184". Choose 6- or 10-blade, fixed or floating reels to match your needs.

So stay ahead of the game.

See your Jacobsen distributor for full details and a free demonstration. Attractive lease and finance plans available. Or for more information contact: Jacobsen Division of Textron Inc., Racine, WI 53404.



A powerful 5-Gang Hydraulic Ranger with a 133" cutting swath is also available.

JACOBSEN
TEXTRON

Jacobsen Division of Textron Inc.
© Jacobsen Division of Textron Inc. 1988

Circle No. 122 on Reader Inquiry Card





Golf course architect Mike Hurdzan incorporates knowledge of golf design history into his present designs matching green slope to putting speed and skill.



The Stanwich Club members sacrificed a little speed so that Scott Niven could adjust management techniques to keep greens healthier and playing more honestly.

the case at the prestigious Greenbrier in White Sulphur Springs, W.Va.

In the past, executive director of golf and grounds Robert Mitchell has had speeds as high as 12 to 13 on the stimp-meter for the 1979 Ryder Cup matches. For other tournaments, Mitchell keeps greens at around 9.5.

Otherwise, he says, "my opinion is that the guests who come to play the Greenbrier enjoy our courses with a putting speed of 8.5. Thus, I try to keep speeds between eight and nine on our three 18-hole courses."

That means a swing away from scalping. Mitchell believes a 1/8-inch cutting height is too low for bentgrass/poa greens in his region.

"I prefer verticutting, top dressing, judicious use of fertilizer and chemicals, and even double cutting," he explains.

Also, recent technological advancements are making their way onto the market. That will improve speed and texture without lowering cutting height. Most notable are the turf groomers.

Jacobson's Turf Groomer was the first to enter the market and was followed shortly thereafter by Toro's Grooming Reel and Lesco's groomer. Since these are pretty new to the market, their collective effect is yet to be felt.

Variables

Most superintendents will continue to use existing equipment and techniques to manage greens.

Chuck Clark of The Broadmoor in

Colorado Springs, notes, however, that adjustments are a constant necessity. Weather conditions, he says, can change stimp readings from morning to afternoon. "When weather conditions don't cooperate, speeds which may begin the day at around nine may end up at 11 before the day is over."

To help keep his greens (and himself) out of stress during uncooperative weather, he has added a syringing system around all the greens to help preserve them with little inconvenience to the golfer.

Good intentions

The original intent of the stimp-meter



Superintendent Robert Mitchell integrates several management techniques to keep green speeds constant and turf healthy for guests at The Greenbrier.

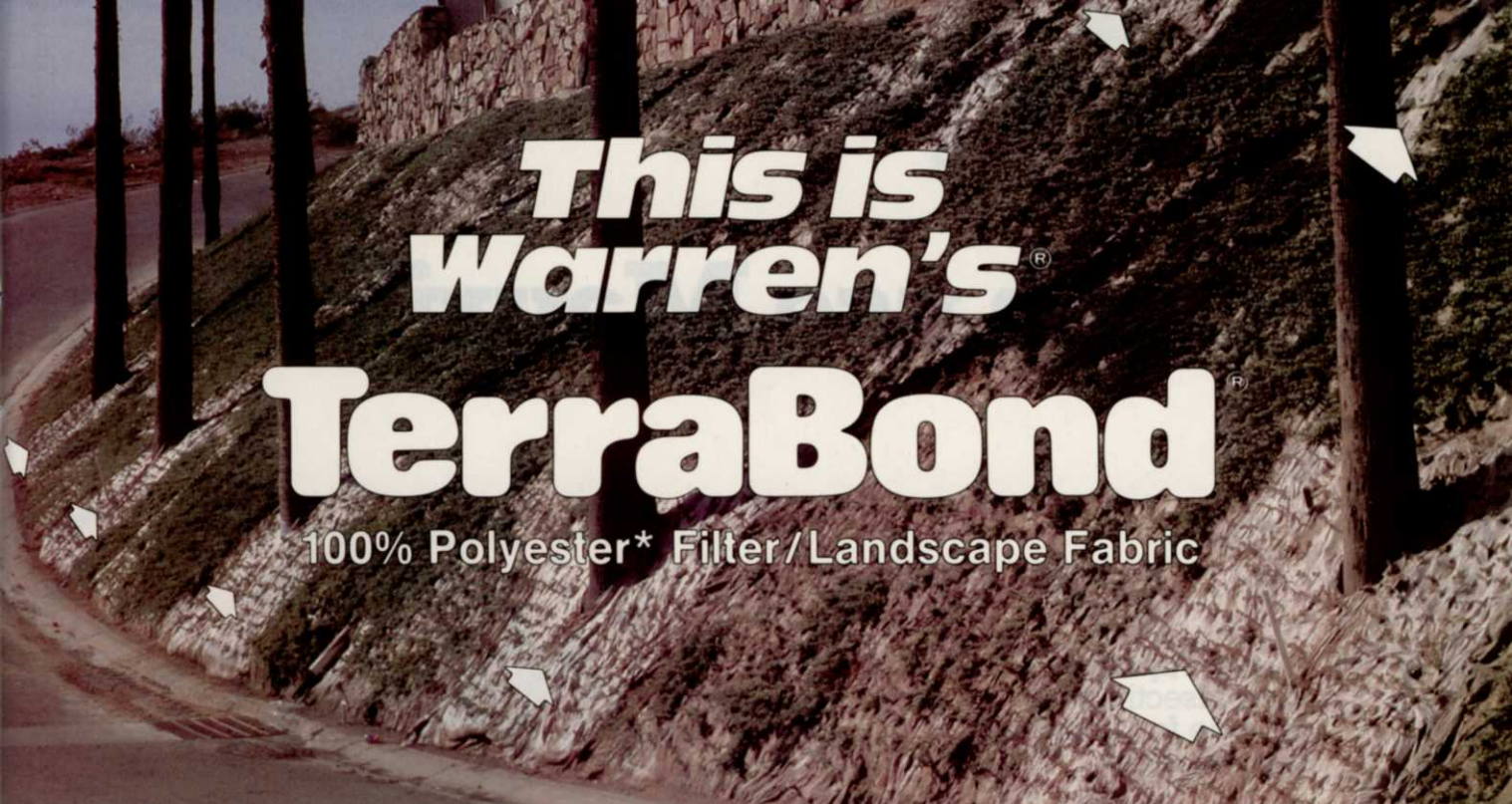
was to determine consistency of green speed from one green to the next and act accordingly to keep them consistent, thereby introducing skill into holing a putt.

Golf course architect Mike Hurdzan, Ph.D., would like to see skill returned to putting. He finds it ridiculous that the best players in the world would three- and four-putt from 10 or 12 feet, as they did at the 1982 Masters—the year Augusta switched to bentgrass "on slopes designed for Bermuda," he says. "Putting became luck, not skill." Hurdzan points out that Alister MacKenzie designed Augusta's green contours with Bermudagrass in mind.

"The point is," Hurdzan believes, "if putting is to be a skillful pursuit, then speed and slope must be matched."

Accomplishing this will take some time. Some help from the PGA and its members would be a good start. Playing pros are the most visible and influential people at pointing the way, as they did with higher speeds. They can do the same by moving back toward Hurdzan's three S's: speed, slope and skill; and a return to proper stimp-meter use.

"The stimp-meter can be a useful tool only when everyone has been properly educated to its intended use and an agreement has been struck as to how it will effect our management practices," The Broadmoor's Clark concludes. "It won't be the pro or the club manager who will be moving on when the greens die." **LM**



This is Warren's® TerraBond®

100% Polyester* Filter/Landscape Fabric

TerraBond® solved this tough erosion control problem in Phoenix... and helped enhance the natural beauty of the site at a fraction of the cost of concrete and stone. The ground cover is creeping over and rooting through the TerraBond down into the soil below. After 9 months in the desert sun and heat, the TerraBond is still in perfect condition (other materials would have disintegrated).

**Put America's No. 1 geo-fabric to work for you ...
it's the only engineered, quality-controlled
filter/landscape fabric that's designed not to fail.**

TerraBond®, the **proven** leader in geotextile filter/landscape fabrics, is manufactured in the most modern factory of its kind in the U.S. ... by people who care about creating a product you can rely on to do its job continuously, without fail.

- It's **polyester** (not polypropylene) ... with high UV and chemical resistance to assure long life **on or in** the ground.
- It's **soft and pliable** ... easy to handle and install ... molds itself to the soil under rock and riprap, which is vital for successful long-term erosion control.
- It's **strong and tough** ... stays intact during the rigors of construction ... **remains** strong and tough years after installation because it's polyester, (not less durable polypropylene).
- It's **uniform in density** ... to assure positive,

uniform filtration and separation of soils, ground, sand, mulch, etc.

- **Plus its fibers are mechanically bonded by needle-punching** (not glued or melted together) ... this manufacturing process permits positive flow-through of fines while retaining larger soil particles which would otherwise clog your drains.

Shouldn't you be using the PROFESSIONAL fabric that's proven Number 1? It virtually ends costly rework and nuisance callbacks.

Whether your application is mulch and weed control, subsurface drainage, retaining wall linings, erosion control, gravel paths, brick or paving-stone patios, or planter separation, use the one filter/landscape fabric on the market proven not to fail: **Warren's TerraBond.**

*Made from Trevira® (reg. TM of Hoechst AG)

"It always costs less to put in the best."

Warren's®

TURF PROFESSIONALS

Corporate Offices: Crystal Lake, Illinois 60014

TerraBond is now available anywhere in the U.S. Call us for the name of the stocking dealer nearest you.

Call 1-800-828-TURF (8873) In California call: 1-800-828-8882.

For specific product information contact Warren's Seed & Special Products Division, P.O. Box 459, Suisun City, CA 94585.

Circle No. 146 on Reader Inquiry Card

MAY 1988/LANDSCAPE MANAGEMENT 37



You can use Mavrik Aqua

Mavrik Aquaflow is the ideal insecticide/miticide for landscape maintenance.

It is a **non-restricted product** that is highly effective against the majority of insect and mite problems.



There are **no phytotoxicity** problems. Mavrik® has been proven safe for hundreds of plant species, even when sprayed right on the blooms.

flow[®] all over this page.



Mavrik is also **concentrated**. So you have less to buy, carry around, or store. It's safe to use and Mavrik **leaves no odor** and **little visible residue**.

When you have insect and mite pests, hit them with Mavrik Aquaflow. And it'll be all over for them.

See your distributor today.



SANDOZ
CROP PROTECTION
CORPORATION

DES PLAINES, IL 60018

Use pesticides effectively. Read and follow label directions carefully.
© 1987 Sandoz Crop Protection Corporation
Mavrik is a registered trademark of Sandoz, Ltd.

Circle No. 139 on Reader Inquiry Card



LAWNGRASSES

Confused about which new turf varieties will work best for home lawns? The executive director of The Better Lawn and Turf Institute tells what to look for in choosing good grass.

by Eliot C. Roberts, Ph.D., The Lawn Institute

The new generation of improved lawngrasses is well recognized for helping lower maintenance costs and increase quality and persistence of the turf throughout cool, humid regions of the country.

Grasses bred to have darker green foliage are not likely to be over-fertilized in an attempt to improve color. So turf is maintained without stimulation leading to excess growth. This only weakens the grass and requires more frequent mowing. Savings on fertilizer costs can be significant.

New grasses developed for disease resistance are far superior to common types. Since disease conditions come and go, the task of chemical control is difficult and costly. Use of blends and mixtures of lawngrasses with improved resistance to one or more of the several common fungus pathogens builds hardiness and added beauty into a lawn. It also saves money.

Cultivars are now available with greatly increased insect resistance. Some even contain endophytes. These organisms live within lawngrass plants without harming the grass in any way. They cause the turf to be undesirable for insect infestation.

These types of biological insect control are permanent with the establishment of the sod. They may well eliminate or at least greatly reduce the need for some insecticides. Improvements of this type are meaningful in our attempt to reduce pollution and improve environmental quality.

Weeds cannot get a seedling start in a turf that has formed a good, dense stand and maintains that stand through the growing season. The new proprietary named grasses that have

been selected and bred for this kind of growth habit and vigor are the first line of defense against weeds.

Sod produced from these grasses is like "money in the bank" when it comes to savings on the cost of herbicides for lawn maintenance.

The Lawn Institute supports a Variety Review Board to evaluate the relative performance of new varieties of lawngrass marketed throughout

the United States and Canada. Each year, 40 to 50 of the best cultivars are selected for special recognition. With some 300 cultivars under evaluation in the United States and Canada, there is a wealth of superior germ plasm available.

Consumer interest in new grasses is taken into consideration. As turf-type perennial ryegrasses and tall fescues have become more popular, in-



Use of blends adds beauty to a lawn.

Turf Guide for Improved Turfgrasses



Species	Growth Habit	Establish Rate	Nitrogen Requirement	Mowing Frequency	Close Mowing Tolerance (1/2" or less)	Traffic Tolerance	Drought Tolerance	Competitiveness	Thatch Formation	Shade Tolerance	Cold Tolerance	Seeding Rate/1000 sq.ft.
Improved Turf-Type Kentucky Bluegrass	Spreads by rhizomes	Slow	Medium	Low to medium	Fair	Good	Good	Medium	Medium to high	Fair to good	Very good	2-3 lbs.
Improved Turf-Type Perennial Ryegrass	Bunch type	Very fast	Medium to high	High	Very good	Excellent	Very good	High	None	Fair to good	Fair to good	5 lbs.
Improved Hard Fescue	Bunch type	Slow to medium	Low	Low	Poor	Good	Excellent	Medium	Medium	Very good	Very good	4-5 lbs.
Improved Chewings Fescue	Bunch type	Medium	Low to medium	Low to medium	Good	Fair	Good	High	Medium to high	Very good	Very good	4 lbs.
Improved Creeping Fescue	Spreads by rhizomes	Medium	Low to medium	Low to medium	Poor	Poor	Good	Medium	Low to medium	Very good	Very good	4 lbs.
Improved Tall Fescue	Bunch type	Medium	Medium	Medium	Poor	Very good	Excellent	Medium	Low to none	Good	Good	6-9 lbs.
Improved Creeping Bentgrass	Spreads by stolons	Medium	Low to medium	Low to medium	Excellent	Good	Poor to fair	High	High	Fair	Excellent	1/2-1 lb.

Compiled By: SEED RESEARCH OF OREGON, INC

creasing numbers of these grasses have been listed. This helps to provide better cultivar availability on a broad geographic base since not all cultivars are marketed uniformly across the country. As interest and use of a lawngrass declines, fewer cultivars are listed. Those remaining are the ones readily available in regions of the country where these grasses are best adapted.

No one cultivar will perform equally well under the wide variation of soil, climate and use found across the United States and Canada. Cultivars are selected to provide as

wide a range of adaptation as possible. Local trials and cooperative extension recommendations, of course, are helpful in making a final selection. For this reason, several of each type cultivar; i.e., bluegrass, fine fescues, perennial ryegrass, turf-type tall fescue, bentgrass and specialty grass are listed.

Weed-free bluegrass

Of all lawngrasses, none are better sod forming than the Kentucky bluegrasses. Underground stems grow through the soil and send up new shoots at intervals to form the tightest,

most dense turf possible.

Since a seedling weed and a Kentucky bluegrass plant cannot both occupy the same spot at the same time, weeds fail to become established in a healthy, vigorous bluegrass turf. The new named bluegrass varieties found in premium seed blends and mixtures have been developed with more heat and drought tolerance and with greater insect and disease resistance to make the turf persistent in crowding out weeds through the entire year.

With an abundant supply of weed seed always present in the soil, a vigorous bluegrass lawn is needed

Lawn Institute lists favorites

Here are the Lawn Institute's 1988 preferred variety selections, as made by its Variety Review Board:

KENTUCKY BLUEGRASSES: Adelphi, Estate, Sydsport, Merit, Huntsville, Nassau, Glade, Fylking, Baron, Ram I, Arboretum, Monopoly, America, Nugget, Rugby, Eclipse, Gnome and A-34 Bensun.

TALL FESCUE: Pennant, Houndog, Arid, Rebel II, Galway and Mustang.

PERENNIAL RYEGRASS: All*Star, Pennant, Regal, Gator, Derby, Delray, Fiesta II, Manhattan II and Ranger.

FINE FESCUES: Banner, Koket, Ensylva, Reliant and Jamestown.

(Turfgrass managers should always be sure to check with local extension agents concerning adaptability of certain varieties to their area.)

fine fescues give way and provide needed room; as other conditions may reduce growth of bluegrasses, fine fescues move in and fill in the space so that a high quality ground cover is maintained.

Versatile perennial ryegrass

The new turf-type perennial ryegrasses are the most versatile of any lawngrasses available. They germinate rapidly, can be used by themselves or with other grasses in seed mixtures. They are used successfully to establish a new lawn or to improve an old one by overseeding into a poor quality turf. They are truly a do-it-yourself lawngrass.

These grasses do not form thatch and are easy to maintain on low budgets.

Disease and insect resistance help to eliminate need for use of pest control chemicals. And, when something does go wrong, it's easy just to let the disease or insect infestation run its course and then start new turf, simply by seeding over the injured areas.

Hardy tall fescues

Turf-type tall fescues have established a fine reputation for hardiness

throughout spring, summer and fall to prevent weed seedlings from getting a start.

Fine fescues to start

Spring and fall are the best times to seed lawngrasses. And, premium seed mixtures will contain from 30 to 50 percent fine fescues to see that all grasses get off to a good start. Fine fescues germinate quickly and establish rapidly in either sun or shade. They have low fertilizer require-

ments and thus do not compete adversely with other slower growing grasses in the mixture.

Fine fescues separate grasses of different species and create a population of plants with improved vigor and disease resistance. They function as good companion grasses in lawn establishment, and then develop into a permanent component of the sod that helps create a high degree of hardness and ease of maintenance.

As conditions favor bluegrasses,



MARUYAMA

Because Second Best Just Won't Cut It.

Commercial Users Count On Maruyama Hedge Trimmers. Here's why:

Heavy Duty

- Induction hardened chrome steel blades
- Extra blade thickness, designed for maximum strength
- Large, durable gear box, four bearings

Quality Power

- 15.9 and 24.1 cc Mitsubishi engine with heavy duty bearings
- Thicker chrome plated pistons & cylinders • Low maintenance design

Comfortable Operation

- Handles designed for flexibility, minimum vibration and maximum comfort

Call or write today for more information on our full line.

The Very Best

MARUYAMA T.M.

15436 NE 95th Street Redmond, WA 98052 (206) 885-0811

EXCELERATE '88

Excel Hustlers Lead the Field in Performance

You can't finish first in grounds maintenance if your equipment doesn't last the season. Hustler turf equipment is built to go the distance, and more.



Reliability is what puts Excel Hustler ahead of the pack. Features like dependable, industrial grade engines — built for continual use day in and day out — keep you productive and more profitable.

*Hustler's simple design eliminates the need for pedals and gearshifts. With the one-hand hydraulic steering and **dual-hydrostatic drive system**, you'll cut **more** grass in less time and with less operator fatigue.*

Put Hustler on your team and take the victory lap. See your local dealer, or call Excel toll free today for the dealer nearest you.

Excel Industries, Inc.
P.O. Box 7000
Hesston, KS 67062-2097

1-800-835-3260
(In Canada or Kansas 1-316-327-4911)



in development of lawns where growth conditions are less than ideal. They take heat down through the transition zone and even into the upper South. Whereas the old Kentucky 31 fescue made an open, often weed-infested lawn, the new turf-type tall fescues create a more dense weed-resistant turf.

These grasses do not develop thatch and feature improved insect and disease resistance. Thus, they have desirable low-maintenance characteristics. Perhaps the most im-

portant asset of the turf-type tall fescues is their ability to grow deep roots through a large volume of soil. These roots use water and nutrients efficiently and make the lawn trouble free and easier to maintain. Most uniform turf is produced when turf-type tall fescues are seeded alone.

Some mixtures with other grasses are available. Blends of two or more fescues are popular. When starting a new turf-type tall fescue lawn, prepare the soil well and then use either seed or sod.

Specialty lawngrasses

Some residences are so located that soils and climate make use of a specialty lawngrass desirable.

- Lawns in cool, moist climates—Exeter colonial bentgrass from Pickseed West makes a beautiful, uniform lawn where summer night temperatures are cool and natural rainfall or irrigation provides frequent light watering.

This grass can be clipped closer than any other lawngrass— $\frac{1}{2}$ -inch—and by means of above-ground runners, makes the densest turf possible. Seeded with as much as 75 percent fine fescues, Exeter establishes quickly and is easy to maintain. Turf is tolerant of acid soils and cold winters.

- Lawns in moist shady loca-

Senior citizens all over the country find it easy to scratch in a little ryegrass seed from time to time, put on a little water and then enjoy watching the lawn turn green.

tions—Sabre Poa trivialis from International Seeds is the ideal grass for moist shade. Whereas fine fescues do well in dry shade, Sabre is better on wet soils. Seed germinates rapidly to produce a fine textured turf. It blends in well with other lawngrasses.

- Lawns with alkaline soils—Fults alkaligrass from Northrup King is a low-growing, bunchgrass with excellent salt and high pH tolerance. Plants are leafy and leaves are narrow. For lawns on alkaline soils or where roadside salting during winter months results in sodium chloride contamination of parking and lawn soils, Fults is ideal.

- Lawns for low maintenance semi-turf—Some soils are so poor and some growth conditions so inferior that lawngrasses cannot be grown without costly soil modification. Reubens Canada bluegrass from Jacklin Seed can be used to produce a semi-turf ground cover with essentially no maintenance needed, only occasional mowing.

LM

For more information, contact: The Lawn Institute, County Line Rd., P.O. Box 108, Pleasant Hill, TN 38578-0108; (615) 277-3722.

FOR MAXIMUM PROTECTION OFF!

INSECT REPELLENT

100% DEET
UP TO 10 HOURS OF
PROTECTION AGAINST
MOSQUITOES,
BITING FLIES,
CHIGGERS,
TICKS,
FLEAS
AND GNATS.

"NOTHING WORKS BETTER
OR LASTS LONGER."

ACTUAL
SIZE

© 1988 S.C. Johnson & Son, Inc. All rights reserved.

FIRST CHOICE

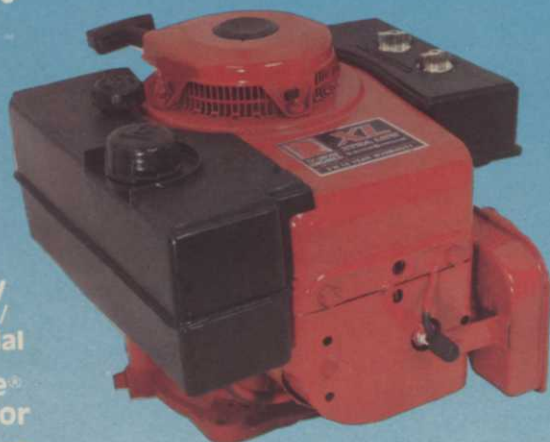
TECUMSEH

WHEN BUYING
POWER EQUIPMENT

or at

REPLACEMENT
ENGINE TIME

- ★ Electronic ignition
- ★ Cast iron cylinder sleeve
- ★ 2 IN 10 year limited warranty Industrial/Commercial
- ★ Kleenaire® carburetor air filter — pleated paper element
- ★ Ultra Balance vibration dampening (12 H.P.)
- ★ Oil pump lubrication



TVM
8 and 10 H.P.



OHV — 12.0 H.P.
overhead valve

- ★ Available at all Tecumseh Central Warehouse Distributors, Authorized Service Distributors and most Registered Tecumseh Service Dealers USA and Canada

★ Listed in the telephone directory yellow pages under "Engines, gasoline" heading

Circle No. 141 on Reader Inquiry Card

Will replace
most 8—12.5 H.P.
engines



TECUMSEH PRODUCTS COMPANY — ENGINE AND TRANSMISSION GROUP
SERVICE DIVISION — 900 NORTH STREET — GRAFTON, WISCONSIN 53024 — (414)377-2700

The TORO logo is displayed in white, bold, sans-serif capital letters inside a red rounded rectangular box.

Now, another model

NETWORK 8000

*The central / satellite control system
that saves energy, water, labor . . . money!*

Superior irrigation control translates into two major advantages: better turfgrass and substantial reductions in the use and cost of energy, water and labor.

Toro's *Network 8000* provides exactly that: demonstrably superior irrigation control. It is the first and only totally automatic irrigation control system. Just enter design, weather/climate, geographical and agronomical information. Network 8000 then *automatically* computes the operating times for all stations, based on the evapotranspiration rate, modified by any applicable rainfall*.

Network 8000 accomplishes all of this by combining a computerized central controller with satellites of amazingly extensive stand-alone capabilities.

The central controller utilizes an IBM personal computer as the hub of the operation, including keyboard, color monitor, matrix printer and a "mouse" for easy access to all functions.

This non-dedicated central is capable of "transparent" multiple function, which provides for *simultaneous* business and irrigation program

operation. It's like getting two important pieces of equipment for the price of one!

Network 8000 provides automatic adjustment of irrigation system operation, responding to such key factors as rainfall, evapotranspiration rate, plant materials, soil types, soil compaction, geographic location, terrain slope, Ph factor and system design. A manual override is provided for all factors.

The central programmer will operate any station, set the running time, assign it to any program and set up to three repeats for any station. It can operate up to 800 satellites of 32 stations each, for a total of 25,600 stations.

Toro's new Network 8000 central provides two-way communication: it "down-loads" information to the satellites and "up-loads" information from the satellites.

Also, with this central station you enjoy the advantages of water-budgeting by means of percentage increase/decrease control (by station, by program, by CSG, or the total system), from 1% to 900%.

But this is only the beginning of the story. You have to see it perform to fully appreciate exactly what it can do for you and your irrigation. Call *The Man from Toro* for a no-obligation demonstration.

*Requires satellite rain gauge monitoring equipment



Key components to Network 8000 are the IBM personal computer, with color monitor and keyboard, operated with handy "mouse" and/or keyboard. Shown in the middle is Toro's Delay & Distribution Unit. On the right, IBM matrix printer and stand.

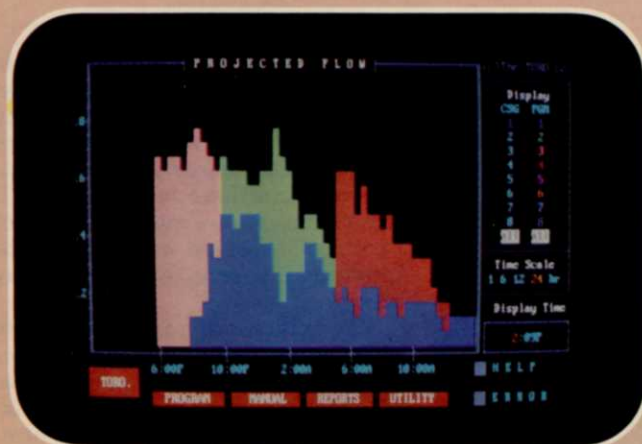


MODEL 198-39-88

THREE TYPICAL SCREEN DISPLAYS



This screen quickly displays complete irrigation program for one full day, for each of 14 days in the system.



Screens such as this Projected Flow Chart can be used for fast easy-to-read reference to assure efficient operation.



Excellence in Irrigation®

For additional information, contact:

The Toro Company
Irrigation Division

Dept. LM-488, P.O. Box 489, Riverside, CA 92502

Circle No. 144 on Reader Inquiry Card



SATELLITE CONTROLLER

Matching the Network 8000 central for advanced and innovative design is Toro's new satellite/stand-alone solid state controller, available in a stainless steel case or a green painted steel case. The satellite is a 32-station unit, with each station capable of operating three Toro electric valve-in-head solenoids.

As with the central, this new satellite offers two-way communication. It receives, stores and sends all commands generated by central. At the same time, it up-loads to the central such key factors as satellite status, air temperature, changes made in station timing at the satellite, and valve wire failure sensing.

Each station is capable of minute and hour timing, from 1 minute to 4 hours and 15 minutes per station, in one-minute increments.

Toro's new Network 8000 Satellite also provides water-budgeting capability, with percentage increase/decrease from 1% to 900%.

The combination of the equally amazing new satellite and central controllers make Network 8000 your first step into the 21st Century, with pay-off *now* in terms of better turfgrass at lower costs.



DISEASES OF COOL-SEASON TURF

No fungicide offers a complete spectrum of turf disease control. But, for most diseases, a range of reliable products is available and (in spite of enormous development costs) the introduction of new materials continues.

by Noel Jackson, Ph.D., University of Rhode Island



Necrotic ring spot on Kentucky bluegrass is a serious problem for the lawn care industry.

Managing high quality turf is an exacting task due, in no small measure, to problems associated with fungal disease.

Each year, the potential exists for a succession of turf diseases. Resting structures of fungal pathogens present in previously-infected plant parts, in thatch or in the soil, resume vegetative growth and generate new inoculum. Each of the varied disease-causing fungi responds to particular environmental conditions that are

conducive to renewing this activity.

Even under adverse conditions, sufficient new fungal growth and/or sporulation occurs. These ensure the survival and carry-over of each species. Given optimum condition, then, a large-scale build-up of inoculum can occur. Large amounts of inoculum, however, do not inevitably mean widespread disease.

Specific environmental conditions (not necessarily the same as those favoring inoculum build-up) are

needed for infection of susceptible grass plants and for consequent disease symptoms. The disease-causing fungi invariably are present in turf. But unless the appropriate environmental conditions favorable to all these processes are met, outbreaks of a particular disease will be minor or apparently absent for the growing season.

The interactions involving grass hosts, fungal pathogens and environmental factors ultimately determine whether particular pathogens are favored at the expense of the grass host, so allowing disease to develop. The turf manager must anticipate these situations and make timely management decisions to maintain the balance in favor of the grass host.

Contributory factors

Factors which may contribute to reducing the incidence of disease are:

- judicious changes in irrigation and fertilizer practice;
- modification of soil pH;
- improvement of soil aeration and drainage;
- removal of thatch and clippings;
- adjustments in mowing height and mowing frequency;
- dew dispersal and improved air drainage;
- restraints on the amount of wear;
- incorporation of organic amendments;
- weed control;
- insect control;
- nematode control; and
- use of resistant varieties.

But even the most skilled turf manager cannot rely entirely on cultural tactics to eliminate the risk of disease

The choice is yours. Whether your customers need season-long preemergence weed control by itself or on fertilizer from leading formulators, Team fits.

Either way, you can control crabgrass and goosegrass season-long with just one application. Or even a split application, if need be, to better fit your program.

Team granular also fits your high standards of annual grass weed control. University tests show it's outstanding. Team gets to the ground and stays put to form a zone of protection that keeps weeds out all season long.

And Team does all this without hurting your turf, including sensitive bentgrass.

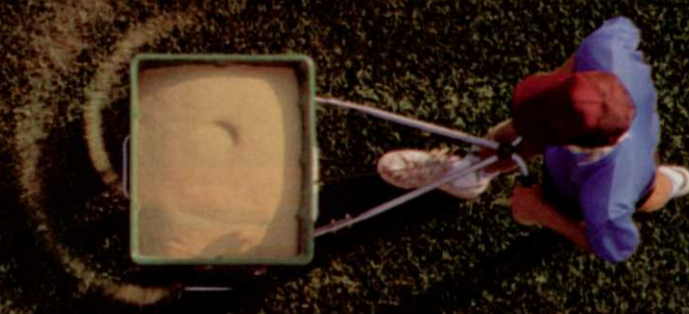
So spread it straight in granular form. Or spread it on fertilizer available from leading formulators. Team fits your program. See your Elanco representative. Or call toll-free: **1-800-352-6776.**

Elanco Products Company
A Division of Eli Lilly and Company
Lilly Corporate Center
Dept. E-455, Indianapolis, IN 46285, U.S.A.
Team™ — (bifenox+trifluralin, Elanco)
Refer to Team label for complete use directions.



Circle No. 116 on Reader Inquiry Card

Spread it your way.



TeamTM granular.



TeamTM on fertilizer.

in high quality turf. This must be supplemented with chemical control measures.

Preventive, rather than curative, measures afford the most effective protection against turf diseases. No fungicide offers a complete spectrum of turf disease control. But, for most diseases, a range of reliable products is available and (in spite of enormous development costs) the introduction of new materials continues.

Fungicide arsenals

With fungicide tolerance on the increase, the arsenal of turf fungicides must be as large as possible. This ensures that control programs can involve the alternate use of several effective products and so lessen the risk of tolerance build-up.

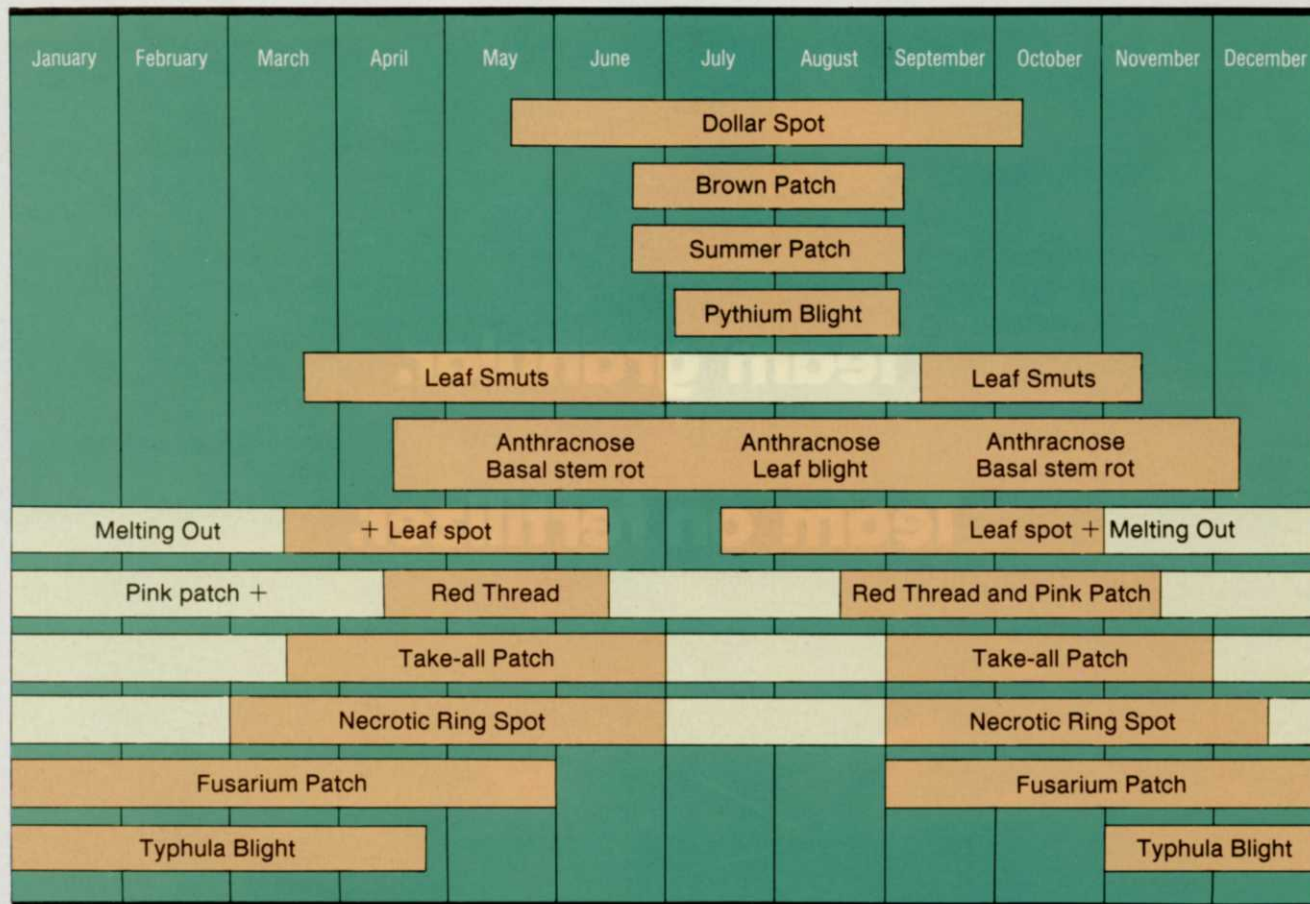
In the absence of a chemical cure-



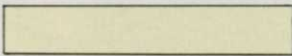
Take-all patch, which has destroyed this Pennncross creeping bentgrass, is a serious problem on sand greens.

CALENDAR

Common Diseases of Cool-Season Turf



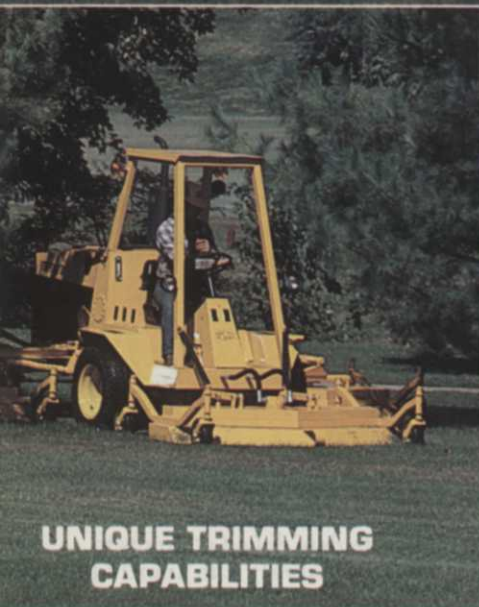
 Persistent symptoms often still visible.

 Pathogen most active.

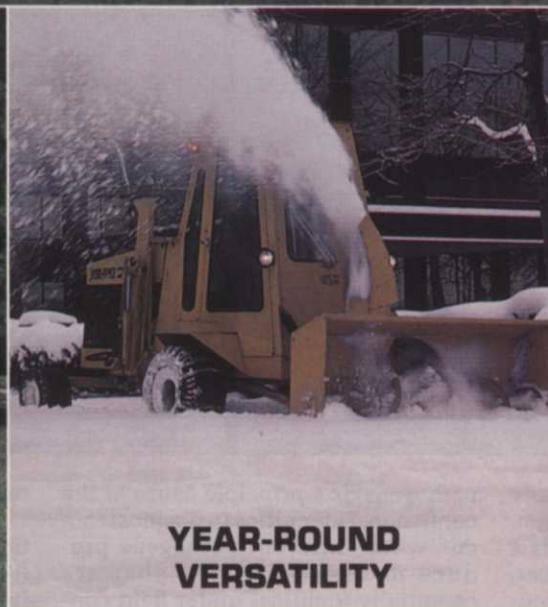
CUT YOUR TURF PROBLEMS DOWN TO SIZE



with **HYDRO-POWER 180**



**UNIQUE TRIMMING
CAPABILITIES**



**YEAR-ROUND
VERSATILITY**



**EASY-FOLDING
CUTTING UNITS FOR
TRANSPORT**

Your search for a high capacity mower encompassing a one man operation is now concluded. The Hydro-Power 180 with its 15 foot hydraulically driven rotary mower has a mowing capacity of up to 11 acres an hour while incorporating rear wheel steering for maximum maneuverability. Cutting units are designed for maximum floatation and may be used individually or in any combination of the three.

A foot pedal controlled hydrostatic transmission affords variable mowing speeds as well as transport speed to insure maximum travel time between the job sites. The Hydro-Power 180 offers year-round versatility with a 2-stage, 73" snow blower and heated cab.

Manufactured by



18155 Edison Avenue
Chesterfield, Mo. 63017

COOL-SEASON TURF DISEASES

TURF DISEASE AND CONTROLS

Disease	Causal Agent	Hosts	Biological and Cultural Control	Chemical Control
Anthrachnose	<i>Colletotrichum graminicola</i>	Annual bluegrass Fine-leaf fescue Kentucky bluegrass Perennial ryegrass Creeping bentgrass	Adequate nitrogen. Cool grass by syringing.	Maneb plus zinc sulfate, chlorothalonil, benomyl, thiophanate-methyl, thiophanate, thiophanate-methyl + mancozeb, triadimefon, propiconazole
Brown patch	<i>Rhizoctonia solani</i>	All major turfgrass species	Reduce nitrogen. Remove "dew." Increase air movement.	Mancozeb, maneb + zinc sulfate, chlorothalonil, vinclozolin, benomyl, thiophanate-methyl, thiophanate, thiram, thiophanate-methyl + maneb, thiophanate + thiram, PCNB, iprodione, propiconazole
Dollar spot	<i>Lanzia spp.</i> <i>Moellerodiscus spp.</i> (<i>Sclerotinia homoeocarpa</i>)	Annual bluegrass Creeping bentgrass Colonial bentgrass Fine-leaf fescues Kentucky bluegrass Perennial ryegrass Tall fescue	Increase nitrogen. Remove "dew."	Benomyl, thiophanate, thiophanate-methyl, chlorothalonil, anilazine, fenarimol, cadmium compounds, thiophanate + thiram, thiram, thiabendazole, benomyl, iprodione, thiophanate-methyl + maneb, vinclozolin, triadimefon, propiconazole
Summer patch	<i>Magnaporthe sp.</i>	Annual bluegrass Kentucky bluegrass	Light, daily watering during the summer.	Fenarimol, thiophanate-methyl, thiophanate, triadimefon, iprodione, benomyl propiconazole
<i>Helminthosporium</i> Diseases Brown blight Leaf spot and Melting-out Net blotch Read leaf spot Leafspot, root and crown rot Zonate Leaf spot	(<i>Drechslera</i>) <i>D. siccans</i> <i>D. poae</i> <i>D. dictyoides</i> <i>D. erythrospila</i> <i>Bipolaris</i> <i>D. sorokiniana</i> <i>Bipolaris</i> <i>D. gigantea</i>	Ryegrass Kentucky bluegrass Fescue Creeping bentgrass All major turfgrass species All major turfgrass species	Remove clippings. Raise cutting height. Plant resistant cultivars. Moderate spring nitrogen. Daily irrigation.	Mancozeb, chlorothalonil, iprodione, anilazine, maneb + zinc sulfate, PCNB, vinclozolin

all, accurate diagnosis is crucial to any successful disease control program. Prescribing the wrong fungicide is a waste of resources. In some instances, it may promote or aggravate a particular disease problem. Regional and even very local differences in the effectiveness of fungicides, when employed on ostensibly similar turf disease symptoms, have puzzled both pathologists and turf managers alike. Recent and ongoing research at several locations nationwide has helped resolve some of these inconsistencies.

Misidentification or failure to identify the primary pathogen (or

pathogens) is a principle cause of the confusion. Difficulties in diagnosis occur when different pathogens produce disease symptoms that are essentially identical under field conditions. The situation is compounded when two or more pathogens are involved concurrently in disease complexes with similar symptoms.

Multiple pathogens

Multiple pathogen involvement has been demonstrated for Corticium disease, now split into red thread and pink patch, with *Laetisaria fuciformis* and *Limonomyces roseipellis* as the

respective causal agents.

Dollar spot presents a similar situation but has to date defied attempts to identify conclusively the inciting fungi. Additional species of *Rhizoctonia* may accompany or replace *R. solani* in causing brown patch in some locations. *Colletotrichum graminicola*, the anthracnose fungus, may act alone or, frequently, in combination with *Helminthosporium* species (now called *Drechslera* or *Bipolaris*), or with the take-all patch fungus *Gaeumannomyces graminis* var. *avenae*.

Take-all patch and other similar



Over the top...

Over the problem.

For grounds maintenance, nurseries, Christmas tree farms, highway or municipal vegetation—for just about any grass control problem—Poast® herbicide is the simple solution.

Poast delivers consistent control of the toughest grasses. Like bermudagrass and crabgrass, quackgrass and foxtails. Yet, Poast is proven gentle to established plantings of valuable greenery. Like flowers, shrubs, trees and ground covers.

With Poast, you don't have to bother with directed or shielded sprays. You

can apply Poast over-the-top of all stages of ornamental growth. And you don't have to worry about soil residue or leaching. Because Poast is meant to treat your grasses, not your soil.



And perhaps best of all, Poast can be highly cost efficient. It can eliminate labor-intensive and time-consuming hand roguing or hoeing. And labor and time equal money.

To keep grass in its place, always follow label directions and count on Poast—the last word in safe, effective grass control.

BASF Corporation
Chemicals Division

BASF

Poast is a registered trademark of BASF AG.
© 1988 BASF Corporation.

Circle No. 101 on Reader Inquiry Card

COOL-SEASON TURF DISEASES

TURF DISEASE AND CONTROLS

Disease	Causal Agent	Hosts	Biological and Cultural Control	Chemical Control
Take-all patch	<i>Gaeumannomyces graminis</i>	Creeping bentgrass Colonial bentgrass Velvet bentgrass	Reduce soil pH. Avoid liming. Use acidic fertilizers, Sulfur	Fenarimol
Pythium blight (cottony blight)	<i>Pythium spp.</i>	Perennial ryegrass Creeping bentgrass Annual bluegrass	Improve soil drainage. Increase air circulation.	Chloroneb, ethazol, metalaxyl, propamocarb
Red thread	<i>Laetisaria fuciformis</i>	Creeping bentgrass Colonial bentgrass Kentucky bluegrass Annual bluegrass Perennial ryegrass Fine-leaf fescue Tall fescue	Increase nitrogen.	Anilazine, iprodione, triadimefon, vinclozolin, chlorothalonil propiconazole
Pink patch	<i>Limonomyces roseipellis</i>	as for red thread	Increase nitrogen.	Iprodione, triadimefon
Snow molds Typhula blight Fusarium patch	<i>Typhula spp.</i> <i>Fusarium nivale</i>	Annual bluegrass Colonial bentgrass Creeping bentgrass Fine-leaf fescues Kentucky bluegrass Perennial ryegrass Tall fescue Velvet bentgrass	Avoid early fall nitrogen fertility that leads to lush growth.	Mercury compounds, PCNB products, chlorothalonil, chloroneb. These products may have to be used in combination for effective snow mold management. Benomyl, iprodione, or mancozeb will control Fusarium patch where it occurs alone
Necrotic ring spot	<i>Leptosphaeria korrae</i>	Kentucky bluegrass Annual bluegrass Fine leaf fescues	Nitrogen to promote recovery. Light daily irrigation. Organic amendments.	Iprodione, fenarimol, benomyl, thiophanate, thiophanate- methyl propiconazole
Stripe smut Flag smut	<i>Ustilago striiformis</i> <i>Urocystis agropyri</i>	Kentucky bluegrass Creeping bentgrass	Reduce nitrogen. Prevent summer dormancy.	Fenarimol, triadimefon, benomyl propiconazole.

patch diseases caused by soil-borne, root infecting fungi, generate the symptoms that are most commonly misdiagnosed.

Fusarium blight is a prime example. Over the years, the designated name became a catch-all for any of the summer-season patch disease symptoms in Kentucky bluegrass turf. It is now recognized that at least two additional diseases can be separated out: necrotic ring spot (causal agent *Leptosphaeria korrae*), and summer patch (causal agent a species of *Magnaporthe* and not *Phialophora graminicola*).

Necrotic ring spot bears a striking resemblance to yellow patch caused by *Rhizoctonia cerealis* and has un-

doubtedly been confused with this disease. In any event, it now figures as one of the major headaches for the lawn care industry wherever Kentucky bluegrass sod is employed.

Summer patch is similarly damaging to Kentucky bluegrass turf but is also commonly encountered on the annual bluegrass component of golf greens. There it produces symptoms similar to take-all patch.

The latter is a serious disease of bentgrasses. It is increasingly common on newly-established creeping bentgrass greens built with sand as the growing medium. *Fusarium blight*, incited by *Fusarium colmarum* and *F. poae*, is still out there somewhere. But, after nearly 25 years of

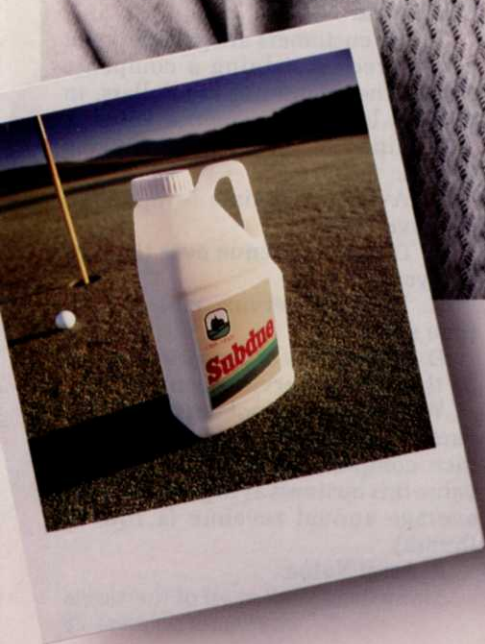
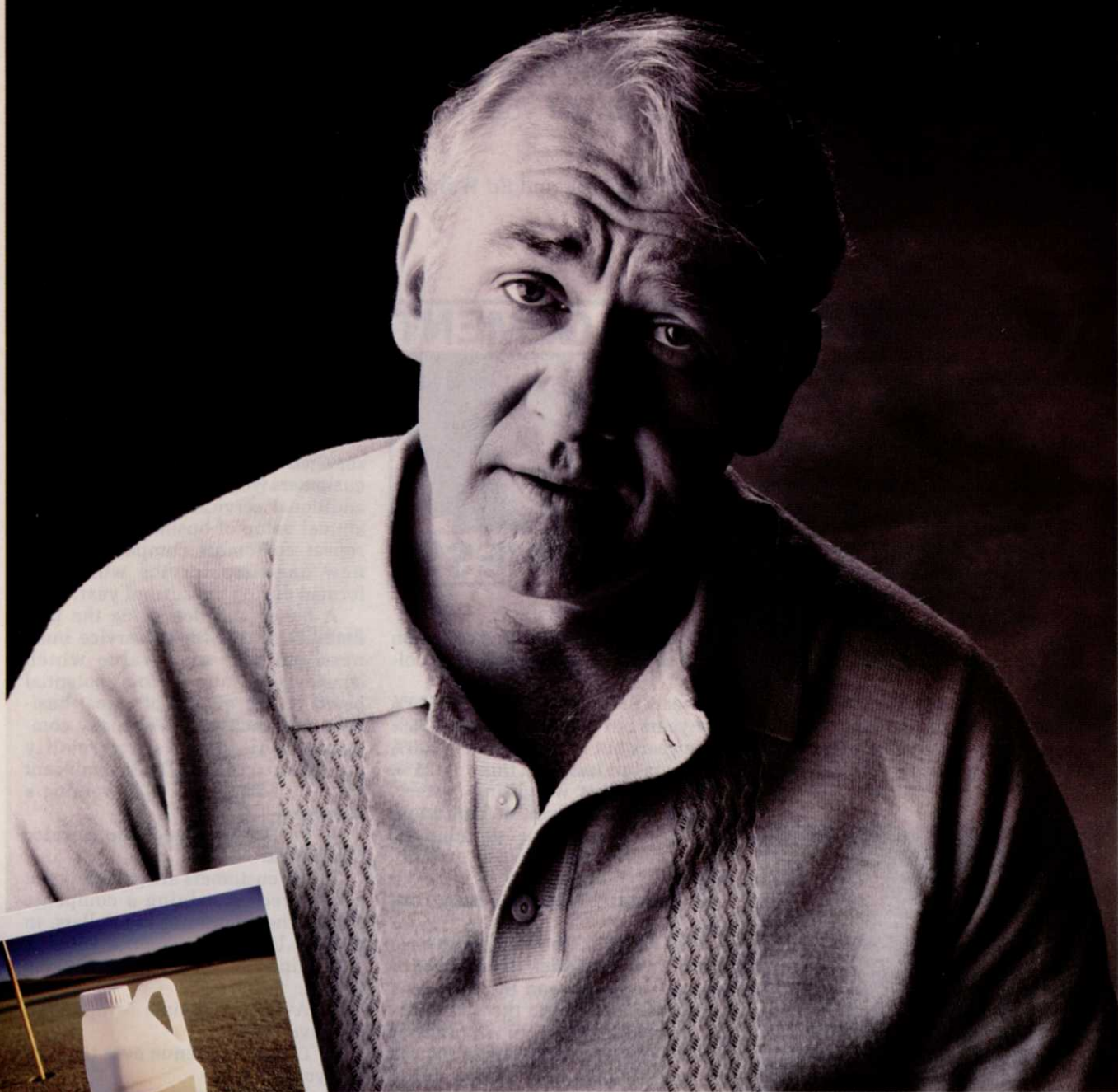
confusion, the incidence and severity of this disease needs to be re-evaluated.

The key

For all of these patch diseases, more definitive diagnostic techniques are needed. Careful microscopic examination of the diseased plants followed by isolation and culturing of the causal agents provide the only certain means of identification and the key to any control measures. **LM**

Next month: disease of warm season turf.

"One of my employees ran the mower into the lake. My wife totalled our new Volvo. And my daughter just dyed her hair purple. But what really concerns me is Pythium."



There's one sure way to avoid worrying about Pythium. Use Subdue® fungicide. Subdue stops Pythium on contact. And once absorbed by grass roots, Subdue protects your turf against further attack for up to three weeks. So don't let Pythium get you down. Get Subdue. Because you've got other things to worry about. **CIBA-GEIGY**

©1987 CIBA-GEIGY Corporation, Ag Division, Box 18300, Greensboro, NC 27419 Always read and follow label directions.

Circle No. 105 on Reader Inquiry Card

VALUING YOUR COMPANY

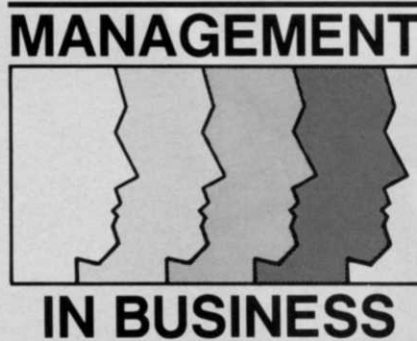
If you are thinking about selling your landscape or lawn care company, how do you determine how much to ask? Or to expect from the potential buyer? These formulas should help get you in the ballpark, anyway.

by Rudd McGary and Ed Wandtke

With the acquisition and merger mania prevalent across the country today, many green industry firms are being approached about selling their companies. A question that we have been hearing discussed at various industry meetings is, 'What is a fair value to receive for your company?' Although the question appears simple, many variables determine the final price a seller pays for a company. The following are the various factors that will be weighed differently in determining what price to ask for a green industry company:

1. Repetitive Customer Base, no contract.

The value of repeat customers in chemical lawn care, mowing or maintenance is determined by calculating the average length of time a company has been retaining its customers. Gen-



erally a formula weighs the retention factor over a five-year period as follows:

five years or longer 100%
four years but less than five . . . 75%
three years but less than four . . . 50%
two years but less than three . . . 25%.

In using this weighting system, some purchasers look at individual account profitability or—in other instances—average revenue per account.

2. Repetitive Customer Base, contract.

The value of the customer base that is under contract, the number of contract renewals and the contract's length will determine these customers' purchase value to a potential buyer. Generally, the formula considers the account's profitability, unbilled contract add-ons and the length of the contract.

One such formula that has been used recently is determined as follows:

- A. Length of the contract (years remaining).
- B. Profitability of the contract (percentage).
- C. Value of the basic contract per year.
- D. Value of the add-on contract extras.

E. Average extras based on the years the contract has been serviced.

Take $(A \times B \times C)$ plus $(A \times B \times E)$ to determine the total value of these contract repetitive customers.

3. One-Time Serviced Customers.

The value of customers who are serviced only once (e.g. design/build customers who return periodically for additional services) is based on the annual value of business from these repeat customers compared to the new one-time service work performed during the current year.

A buyer will determine the profitability of this repeat service business and will set a value which considers the future income potential based on the quality of repeat business sold each year. For many companies, this data is not readily available; consequently no significant value is assigned to it in valuing a company.

4. Partial or One-Time Service Customers.

These customers are generally not considered in valuing a company. Rather the amount of the dollars, in total, is looked at. Then, a value is determined based on the following factors:

- A. Average one-time revenue the past five years.
- B. Trend in revenue over the past five years.
- C. Business service mix of one-time services.
- D. Profitability of the service based on the types of services being sold.

While there has not been one standard formula employed by many service company buyers, many firms value this business at 10 percent of the average annual revenue (a rule of thumb).

5. Asset Value.

Many firms look at all of the assets

continued on page 78



Wandtke and McGary are senior consultants with All-Green Management Associates in Columbus, Ohio. Dr. McGary focuses on marketing and management issues. Wandtke focuses on operations and financial questions.

bobcat 2400 MTC

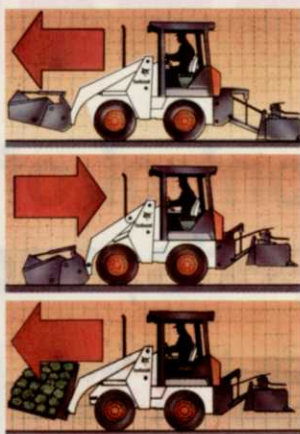
INTRODUCING THE **ULTIMATE** **MULTI-PURPOSE MACHINE**

One machine on the job can do the work of four. Or five. Or six. Or more.

Custom-tailor a Bobcat 2400 to fit your job.

You can custom-tailor your MTC (Multiple Tool Carrier) to fit your job, whether it requires excavating, landscaping, demolition, back-filling, loading, fertilizer handling, scrap handling, construction, or more.

More Agile: Positive four-wheel hydrostatic drive provides the traction and flotation you need to work in rough terrain and muddy job sites. And the MTC's articulated design provides a tighter turning radius to help you work in those hard-to-get-at places.



Save time on the job. Here's an example of how a landscaper can use the MTC with a box scraper going forward and with a landscape rake going backwards, without changing equipment... and in a matter of minutes, you can switch to a front-mounted pallet fork and unload sod.



More Available: The Bobcat dealer network is worldwide and there's a dealer near you. So why not stop in and see for yourself how **much more** you can do with a new multi-purpose Bobcat MTC.

More Versatile: The 2400 MTC features the exclusive Bob-Tach* system (available front) and a rear quick attachment system for fast, secure attachment changes. Your MTC can quickly change function from a loader to a landscape rake, or from a demolition hammer to a backhoe to a 3-point loader, plus many more, for even more versatility.

**More than a loader.
More than a backhoe.**

*Bob-Tach is the registered name for the patented front Bobcat attachment system.



More Mobile: The MTC is ready to move when you are. Its ease of transport will save you money by cutting transportation costs and expensive downtime of larger machines, which often wait for ground transport.



MELROE COMPANY
EMC
A BUSINESS UNIT OF CUMMINS EQUIPMENT COMPANY

112 North University Drive • P.O. Box 6019 • Fargo, North Dakota 58108-6019



bobcat

Introducing the ultimate

TRIMEC®

HERBICIDE

Post-emergent control of broadleaf weeds, grassy weeds, and nutsedge.

- ★ Now, this unique herbicide that was originally developed for use on Bermudagrass can also be used on Kentucky Bluegrass.
- ★ In the beginning we called it Quadmec, but in response to popular demand we have renamed it Trimec Plus.
- ★ If you have never used this ultimate post-emergent herbicide, we want to send you a free sample. If you are already using it, we want to offer you a \$100 value sprayer for only \$25.

Trimec Plus is a major breakthrough in post-emergent herbicide for ornamental turf. It not only controls the widest range of broadleaf weeds, including the toughies like spurge, oxalis and ground ivy — but it also controls grassy weeds such as crabgrass, barnyard grass and dallisgrass as well as nutsedge.

Furthermore, it achieves this control very economically. In most instances, only one treatment is necessary and the cost is only about one-third of what you would pay to use one of the other new post-emergent herbicides with a much narrower spectrum.

What is Trimec Plus?

To understand the composition of

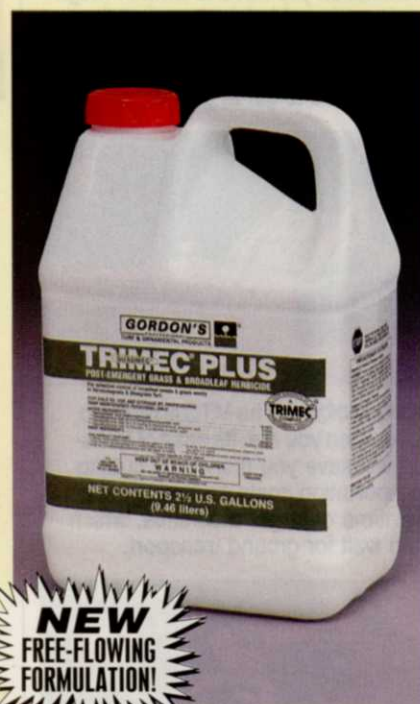


Everett Mealman
President
PBI/Gordon Corp.

Trimec Plus, it might be helpful to start off by saying that it is *not* merely a formulator tank mix of Classic Trimec and MSMA. Rather, it is a specially compounded amine complex of 2,4-D, MCPP, dicamba and MSMA . . . in a stable, uniform suspension that is as easy to work with as any other Trimec complex.

It not only has the synergistic and eutectic power of Trimec for controlling tough summer annuals, but the complex enhances the effectiveness of the MSMA so that in most instances only one treatment is necessary to eliminate crabgrass and nutsedge.

Trimec Plus was tested for several years under the name *Quadmec*, and was introduced in the South last year for use on Bermudagrass. The re-



ports from users and researchers have been very positive. And why not! There has never been anything like it for the grooming of Bermudagrass.

Characteristically, the pre-emerge on Bermuda begins to peter out just about when the hot summer annuals are beginning to be a problem. The result is often a hodgepodge of all sorts of grassy weeds, broadleaf weeds, and nutsedge.

With a broadcast spray of Quadmec (now called Trimec Plus) groundskeepers soon found they could clean up Bermuda in one fell swoop.

New name and formula

But there were two problems. Number one, the original formulation

post-emergent herbicide

PLUS



had too much viscosity and required premixing if it was to be used in cold water. Number two, our friends didn't cotton to the name Quadmec, and instead kept referring to it as *that Trimec plus MSMA*.

Of course you know that when turf professionals talk, PBI/Gordon listens. So we totally corrected the cold water viscosity problem and we changed the name to Trimec Plus.

Now labeled for Bluegrass

Not surprisingly, the reports about Trimec Plus reached into Bluegrass

country, and we were deluged with inquiries about using it for spot treating the rash of pre-emerge escapes that occur every year.

The good news is that Trimec Plus is now labeled for use on Kentucky Bluegrass. Just think what this can mean to you: a stable, easy-to-use, economical, single product that selectively takes grasses out of grass, while at the same time controlling the widest spectrum of broadleaf weeds and nutsedge.

Introductory offer

If you have never used Trimec Plus

(Quadmec), we urge you to call or write us for a sample so you can see for yourself what this product can do for you. It controls more weeds in turf than any other commercially available herbicide in the world.

On the other hand, if you are already using Trimec Plus, we want to thank you by offering you a chance to receive a \$100 value sprayer for only \$25. For details, see the coupon on this page.

Call toll-free 1-800-821-7925
In Missouri, call 1-800-892-7281

Imagine! One post-emergent herbicide that controls broadleaf and grassy weeds and nutsedge.



Controls Ground Ivy



Controls Oxalis



Controls Spurge



Controls Nutsedge



Controls Crabgrass

**This \$100 Value Sprayer
Is Yours for Only \$25
When You Buy Trimec Plus.**



- Totally sealed diaphragm (up to 70 psi pressure).
- Four-gallon capacity.
- Large 6-in fill opening.
- Built-in carrying handle.
- Check valve in lid.
- Brass wand and nozzle. (Variable cone and flat fan).

To get this \$100 Value SP-1 Back-Pack Sprayer for only \$25, buy 2 1/2 gallons or more of Trimec Plus from your distributor between now and October 1, 1988, and send us proof of purchase (a sales receipt). Limit one offer per customer. Delivered via UPS. No requests honored after October 31, 1988. Please include name, address and your check for \$25. Mail to PBI/GORDON Corporation, P.O. Box 4090, Kansas City, MO 64101.

Trimec® is a registered trademark of PBI/Gordon Corporation.

©1988, PBI/Gordon Corporation

G pbi / GORDON CORPORATION

1217 WEST 12th STREET
P.O. BOX 4090
KANSAS CITY, MISSOURI 64101

Circle No. 135 on Reader Inquiry Card

704-388

FLUENT

On Design



The entranceway at the Oak Run housing development in Ocala, Fla. needed an attention-getter. After looking over the arid area, landscape architect Michael Pape decided a waterfall would add lushness and vitality. Pape designed the 1400-acre project and the 1/2-acre waterfall entranceway. Urdl's Waterfall Creations completed the hydraulic and structural design and constructed the pond and waterfall using their lightweight rocks. Pape and Urdl's worked closely together to fit the falls into the natural setting. "Rather than creating a small, out-of-scale water feature, we placed the emphasis on the scale and size of the area," Pape says. "We used predominately native plant materials to keep in harmony with the area." The waterfall uses pumps moving 2400 gpm into three source ponds. The tallest pond is 13 feet high, about 22 feet long. The other two cascade and free fall into the bottom pond. The falls are lighted at night to provide a spectacular view. The Urdl's rocks are hollow, molded fiber reinforced concrete panels, which were bolted and mortared onto the concrete superstructure. The plants in the area, installed by Kinswood Nurseries of Ocala, Fla., are Florida coontia ferns, Indian hawthornes, weeping yaupon and 14- to 16-foot laurel oaks. The entranceway cost about \$400,000. The project won a 1987 Florida Nurserymen and Grower's Association Award of Excellence for water features.

Urdl's Waterfall Creations: Circle No. 200 on Reader Inquiry Card
Michael Pape and Associates: Circle No. 201 on Reader Inquiry Card

Kinswood Nurseries: Circle No. 202 on Reader Inquiry Card

FALLS

by Heide Aungst



The Hyatt Regency Ravinia in Atlanta gets its name from the steep ravine located in the 42-acre wooded site. Landscape architects Roy Ashley & Associates and Clark-Morrell landscape contractors, both of Atlanta, worked with the natural surroundings in designing the property, which opened in 1986. The central design element is a three-story greenhouse atrium lobby which looks out over a 10-acre forest. A cascading waterfall originates in the atrium lobby and continues through the greenhouse to the outdoor garden, where it culminates into two waterfalls. The falls drop approximately eight feet at the highest point. More than 2,000 gpm are pumped through the water feature. The water feature connects with Ravinia Creek and meanders through the deciduous forest. Cost of Wisconsin set the steel reinforcement for the stone walls along the sides of the water feature. Sullivan Stone of Lithonia, Ga. supplied the Tennessee Mountain stone used in the feature. The large boulders create water variety through bounce and movement. Surrounding the water feature is a variety of trees including dogwood, crape myrtle, weeping cherry and red maple and a juniper groundcover. Summer plantings of annuals add color to the area.

Cost of Wisconsin: Circle No. 203 on Reader Inquiry Card
Roy Ashley and Associates: Circle No. 204 on Reader Inquiry Card
Clark-Morrell: Circle No. 205 on Reader Inquiry Card

Sullivan Stone: Circle No. 206 on Reader Inquiry Card
Hyatt Regency Ravinia: Circle No. 207 on Reader Inquiry Card

Insurance problems concerning the design of lakes, ponds and water retention areas

by Jim Leatzow



Landscape managers with lakes and ponds on the property must take extra precautions when designing and maintaining water areas.

If you are responsible for designing public areas that contain lakes, ponds or water run-off retention areas, keep certain important insurance considerations in mind.

First, understand that water-filled areas are always viewed as an "attractive nuisance." That is—especially in the case of children—people will have a hard time avoiding such areas, even if they are trespassing.

Merely putting up a "No Trespassing" sign and assuming your job is done is not enough. Instead, you need to examine multiple design factors.

First, you need to consider the ultimate use for the specific water-filled area you are designing. If, in fact, people are encouraged to swim or boat, then you must proceed with caution to identify those areas where activities will take place. Facilities like docks, piers and location of emergency and lifesaving equipment must also be considered.

More commonly, though, is the design of lakes, ponds and retention areas for aesthetic purposes—areas not intended for public use. One of the biggest concerns with such a project is to make sure that the grade or shoreline slope precludes people—more importantly, children—from losing their footing. This is a consid-

Jim Leatzow is president of Leatzow & Associates, Glen Ellyn, Ill. He specializes in green industry matters.

eration especially on wet grass or other surfaces so they do not tumble into the water.

Furthermore, you will want to consider using an expert in storm water drainage, when necessary, to assist you on such a project. Nothing will get you in trouble faster than overselling your capabilities and not using experts when you get into specific areas for which you have not had ample training.

It is better to make less profit on a project, but to have a plan that is safe and workable. Such an approach will not come back to haunt you in the form of a lawsuit from an injured person.

Along with the proper design of such areas comes the need to include some maintenance factors in your plan. You should make the owner of any facility you design provide periodic safety inspections so the facility continues to be safe.

In a lake or pond setting, this may include inspecting drains which are often installed for overflows. Such drains should include covers secure enough that kids cannot remove them.

Once a storm occurs, overflow drains become important factors in keeping the rising waters from overflowing the banks. If the overflow pipe is blocked with debris, and not checked periodically, one could allege improper design.

Conversely, overflow pipes become uncovered because grates were

removed, storm drains can become life-threatening whirlpools that can drown even a strong person, given the right circumstances.

As mentioned before, maintenance applies to other areas such as fencing and signage. Although you may not have any direct responsibility for the project once it is constructed, you go a long way in adding meaningful safety provisions. You should stress the owner's obligation to consider the maintenance needs once the project is built.

Depending on the type of project, erosion of the banking material is a potential source of design error claims. If water undercuts the banks, over time the ground will become considerably less stable. Thus, the chances of injury increase dramatically.

It is imperative to make on-sight observations while construction work is in progress, whether or not such is called for in your work agreement. I would even encourage liberally using a camera to make a periodic record of the construction phase.

That kind of documentation would be of utmost importance if a claim were to arise. Such measures, along with written confirmation of any changes to the plan, should be considered normal, customary documentation included in every job file.

When it comes down to "your word against theirs" in court, the design professional often comes up on the short end of the stick.

In short:

- Estimate the purpose of the water-filled area.

- Analyze who, if anyone, will be using the facility.

- Put in the necessary safety considerations. (Too much margin of safety is always preferable.)

- Employ other design professionals if you get into areas beyond your expertise.

- Stress the maintenance factors to the owner of the project.

- Visit and record the actual construction while in progress.

- Document, document, document your file as though you expect a claim. Because of some frightening recent interpretations of the Statute of Limitations, plan on being held responsible for your design for the rest of your life. **LM**

HOW ROUNDUP® HERBICIDE HELPS YOU GET MORE PROFIT OUT OF ...SITE PREPARATION



With one treatment of Roundup® herbicide you can get broad-spectrum control of just about every variety of grass, broadleaf weed and brush you're likely to come across. Just spray the area to be planted, wait 3 days for annuals and 7 or more days for brush – and plant. It's as easy – and can be as profitable – as that.

...LAWN RENOVATION



This is a great way to use Roundup to expand your business. With Roundup, you'll be able to renovate any lawn in 1/12th the time it would take you to do the job mechanically. Just spray; wait 7 days; slice, seed and water well. Fall is the best time for lawn renovations.

...TRIMMING AND EDGING



Hand-weeding and string trimming are a waste of time. With Roundup, you'll get longer-lasting results – and do the job more easily and quickly. And remember, no matter where you use Roundup – around patios, steps, gravel driveways, fencelines, tree rings – you, and your customers, can feel confident because Roundup is biodegradable, odorless and practically non-toxic to wildlife, pets and

people. When you put Roundup to work for you, you'll be helping to make your entire operation more professional – more profitable.

Monsanto

ALWAYS READ AND FOLLOW THE LABEL FOR ROUNDUP HERBICIDE. Roundup® is a registered trademark of Monsanto Company.
© Monsanto Company 1988
RIP-8-101B



Circle No. 134 on Reader Inquiry Card

**Call 1-800-323-1421
For Free Literature**

Late fall fertilizing and groundwater quality

by A. Martin Petrovic, Ph.D., Cornell University

The late fall period is becoming both an extremely popular and important time to apply a nitrogen fertilizer to cool-season turfgrass. Considerable research has been done at Ohio State University (see Feb. 1988 *LANDSCAPE MANAGEMENT*) on the response of turfgrass to late fall-applied N.

In general, it has been shown that there is improved late fall, winter and spring color over spring and summer N application. Also, spring root growth is enhanced by late fall N applications.

To date, the only negative aspect is a slightly higher potential for thatch development. This is thought to be a result of the increased rooting associated with late fall N application.

When one considers the environmental impact of late fall-applied N, there is one major point to consider. Potentially, this could be the worst time of the year to fertilize in terms of having a negative impact on groundwater quality. That is, if the following factors are true.

1. For your location, does the greatest amount of water reaching groundwater (referred to as recharge) occur from precipitation in late fall, winter or early spring?

2. Cool and cold temperatures of this period related to limited plant uptake of N.

3. With cool soil temperatures, there is little chance of gaseous N loss by either ammonium volatilization or denitrification.

When all three conditions are found, nitrate leaching potential is very high. There are areas of the country where these conditions naturally occur, such as the cool-season zone of the Atlantic Coastal Plains.

Also, any inland site on sandy soils could potentially be considered part of the problem areas. A perfect example of a location with these conditions is Long Island, N.Y.

Research continues

A research project was initiated in the fall of 1985 to study the impact of late fall-applied N on groundwater quality. Two sites on Long Island, N.Y., were chosen for this experiment.

The first site was St. Charles Cemetery in Pinelawn, which was established in 1982 as a mixture of Kentucky bluegrass (Adelphi and Glade) and perennial ryegrass (Citation, Manhattan and Derby).

The second site was at the Long Island Horticultural Research Laboratory in Riverhead, which contained three cultivars of Kentucky bluegrass seeded in 1980. After establishment, little or no N was applied to either site. The surface soils at each site were sandy loams; however, the subsoil at the St. Charles site was considerably more gravelly.

In November of 1985 and 1986, ion exchange resin bags were buried

determined. With collecting nitrate on an area basis, the information presented can be related to the percent of N applied.

The results

In the table with this update are the results averaged over the two years of the study. These results revealed that the highly water soluble N source urea was suspect to considerable leaching, especially at the Pinelawn location. However, slowly available N sources of ureaformaldehyde, plastic-coated ureas and activated sewage sludge had little or no potential for nitrate leaching. The other N sources—sulfur-coated ureas and flowable ureaformaldehyde—were intermediate in nitrate leaching potential.

Conclusions

From these results, several conclusions can be drawn.

● Applying a highly water soluble N source at a high rate in late fall can result in considerable nitrate leaching. As pointed out before, this could be a "worst case scenario."

● The degree of leaching is very manageable based on the source of N used (i.e. less leaching with slow release sources).

● Factors found at each site affect the degree of leaching. The factors that were different between Pinelawn and Riverhead were

grass species used, soil type of the subsoil and possibly climatic factors, like the amount of precipitation. At this point, which one(s) responsible can only be speculated on.

The general concern over the protection of groundwater quality is important to all turfgrass managers. The results of this project show that there is potential for groundwater contamination. However, as managers, you have options available to reduce or eliminate any nitrate leaching from late fall applied N. **LM**

The percent of fertilizer N applied that leached as nitrates passed the root zone.

Nitrogen Source	Manufacturer	Long Island, NY Location	
		Pinelawn	Riverhead
		% fertilizer	N that leached
Sulfur-coated urea	Scotts	21	14
Ureaformaldehyde	Noram	1	3
Plastic-coated urea (150D)	Estech	0	0
Activated sewage sludge	Milorganite	2	2
Flowable ureaformaldehyde	Cleary	9	5
Urea		42	27

about 12 inches below the surface or below the depth of rooting.

Generally, it is believed that once nitrogen has gone deeper than the root zone, it will eventually end up in groundwater. This is especially true for the fall, winter and spring period because little or no water will move up from below the root zone.

Each November, six different N sources were applied at a rate of 2 lbs. N/1000 sq.ft. The following April, the ion exchange bags were removed and the amount of nitrate collected was

BROUWER 4-wheel drive lightweight, 5 gang, tractor reel mower



Hydrostatic transmission, diesel, Kubota reliability



Fixed cutting unit,
with anti-scalp rollers.



Floating cutting unit
with front roller



Rear mower assembly detached



Finger-tip controls for easy fold-up
and transportation

- Low total unit weight reduces compaction
- New optional front tire track removal brushes virtually eliminate tracks, ideal for fairways
- Finger-tip hydraulic controls, for 3, 4, or 5 gang operation
- Offers the traction needed to mow slopes and in difficult conditions
- Quick detach rear mower assembly
- Small tractor maneuverability and economy
- All new cutting units with single bedknife adjustment
- Fixed or floating cutting units with quick height adjusters

Available as a regular or golf course model

BROUWER
TURF EQUIPMENT LIMITED
An Outboard Marine Corporation Company

7320 Haggerty Rd./Canton, MI. 48187 Telephone (313) 459-3700
Woodbine Avenue/Keswick, Ontario, Canada L4P 3E9 Telex 065-24161 Telephone: (416) 476-4311

BOOKSTORE



645 - MANAGEMENT OF TURFGRASS DISEASES

by J.M. Vargas
Identifies turfgrass diseases by description and illustration. Includes a holistic approach to healthy turf and lawns. Presents practical management strategies for golf courses, lawns and athletic fields. 204 pages, illustrated. **\$26.70**



640 - TURF IRRIGATION MANUAL

by James Watkins
A guidebook for engineers, architects, designers and contractors. Keeps pace with the latest developments in turf and landscape irrigation. Specific chapters devoted to rotary sprinkler design systems. Golf course design systems and expanded engineering and reference material. **\$26.55**



010 - ADVANCES IN TURFGRASS PATHOLOGY

by Joyner and Larsen
Leading U.S. turf pathologists report on turfgrass diseases, pythium blight, snow molds, fairy rings, leaf spot of Kentucky bluegrass in Minnesota, initial and field fungicide screening, turfgrass disease resistance, etc. Contains new ideas on how to combat turfgrass problems. **\$27.95**

220 - CONTROLLING TURFGRASS PESTS

by Shurtleff, Fermanian, Randell
New comprehensive guide provides the most up-to-date information available on the identification, biology, control and management of every type of turfgrass pest. Covers weeds, insects, animal pests and diseases in detail. Also provides information on cultural management practices: the establishment, care and renovation of low-, medium-, and high-maintenance turf areas. 50 color and 400 black and white photographs. **\$32.00**

230 - LAWNS-Third Edition

by Dr. Jonas Vengris and Dr. William A. Torelli
Designed as a textbook or a practical usage manual, this book has been completely brought up-to-date. Care of lawns and turfgrass, from selection of varieties to maintenance of established grass is completely covered. **\$25.95**

225 - TURFGRASS MANAGEMENT

by A.J. Turgeon
Revised edition. Covers the latest developments in turfgrass science and technology. Heavily illustrated with dozens of new drawings. Provides specific recommendations for applying the newest pesticides, fertilizers and other materials to combat turfgrass problems. A valuable reference for diagnosing problems and determining their causes. **\$39.33**



615 - TURF MANAGEMENT FOR GOLF COURSES

by James Beard
Written by an eminent turfgrass researcher, this USGA sponsored text is an ideal reference and "how to" guide. Details all phases of golf course design and construction, turf management, course administration, irrigation, equipment and disease and pest control. Fully illustrated. **\$52.75**

620 - TURF MANAGEMENT HANDBOOK

by Howard Sprague
Practical guide to turf care under both healthy and poor turf conditions. Chapters cover turf in cooler and warmer regions, fertilizer use, regular turf care, weed and disease control and special turf problems. Useful seasonal schedules for management of turf areas. **\$25.25**

110 - TURF MANAGERS' HANDBOOK Second Edition

by Daniel and Freeborg
ENTIRELY UPDATED. A practical guide for the turf practitioner. Chapters on grasses, growth regulators and diseases have had extensive modification. Innovations resulting from research and practice have been added to reflect the current techniques available for turf managers. Offers recommendations for effective turf protection through integrated pest management. Included are alternate plans for providing and improving safe, uniform turfgrass for sports fields. Outline format plus newly added index make this new edition easier to use and a more comprehensive approach to turfgrass science. **\$32.95**

630 - TURFGRASS: SCIENCE AND CULTURE

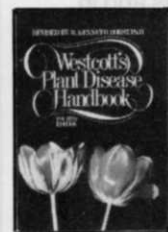
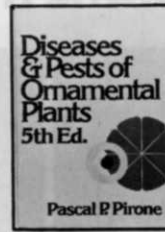
by James Beard
Comprehensive basic text and reference source used in many leading university turf programs. Includes findings of current research compiled from more than 12,000 sources. **\$39.00**

410 - DISEASES & PESTS OF ORNAMENTAL PLANTS

by Pascal Pirone
This standard reference discusses diagnosis and treatment of diseases and organisms affecting nearly 500 varieties of ornamental plants grown outdoors, under glass or in the home. Easy to understand explanations of when and how to use the most effective fungicides, insecticides and other control methods. **\$36.50**

690 - INSECTS THAT FEED ON TREES AND SHRUBS

by Johnson and Lyon
Essential information for identifying more than 650 insect pests and the injuries they cause. More than 200 color illustrations. **\$49.50**



570 - WESTCOTT'S PLANT DISEASE HANDBOOK

by Kenneth Horst
This fourth edition offers professionals the latest diagnostic and disease control information. Plant entries designed to simplify diagnosis, plus background on the classification of plant pathogens. This handbook gives a specific description of each disease, susceptible plants, specific symptoms of the disease, reported locations and control measures for each disease and their side effects. **\$43.95**

510 - HORTUS THIRD

from Cornell University
A 1,300 page concise dictionary of plants cultivated in the United States and Canada. A reference which every horticulture professional should have. **\$125.00**

800 - THE GOLF COURSE

by Cornish and Whitten
The first book ever to give the art of golf course design its due, and golf course architects the credit and recognition they deserve. 320 pages and 150 color and black and white photographs. Traces the history and evolution of the golf course, analyzes the great courses, shows how they were designed and constructed. **\$35.00**

665 - ARBORICULTURE: THE CARE OF TREES, SHRUBS AND VINES IN THE LANDSCAPE

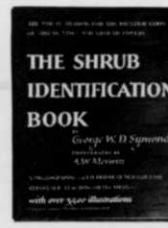
by Richard W. Harris
Provides comprehensive coverage of complete planting, site analysis, preparation and special planting methods, fully detailed coverage of fertilization, irrigation and pruning guidelines on preventative maintenance, repair and chemical control, how-tos of diagnosing plant problems, practical data on non-infectious disorders, diseases, insects and related pests and pest management. **\$52.00**

410 - NATIVE TREES, SHRUBS, AND VINES FOR URBAN AND RURAL AMERICA

by Gary L. Hightshoe
This award-winning reference to native U.S. plants has now been expanded to include shrubs and vines. Over 250 major species are characterized by form, branching pattern, foliage, flower, fruits, habitat, soil, hardiness, susceptibility, urban tolerance and associate species. Includes unique color-coded keys that classify plant species by visual characteristics, cultural requirements and ecological relationships. **\$79.95**

720 - SHRUB IDENTIFICATION

by George Symonds
Pictorial key to identify shrubs. Contains more than 3,500 illustrations to check specimens. Popular and botanical names are given for each shrub and handy index tabs for quick reference. **\$12.95**



BOOKSTORE

750 - TREE IDENTIFICATION

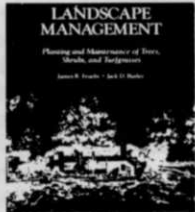
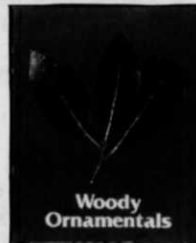
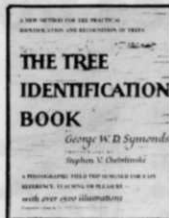
by George Symonds
Pictorial reference to identifying trees by checking leaves, buds, branches, fruit and bark. Like its sister publication, **SHRUB IDENTIFICATION**, popular and botanical names are listed with index tabs for easy reference. **\$14.95**

760 - TREE MAINTENANCE

by Pascal Pirone
The fourth edition of this guide for anyone involved in the care and treatment of trees. Special sections on tree abnormalities, diagnosing tree troubles, non-parasitic injuries and assessing the suitability of different trees. **\$49.95**

405 - WOODY ORNAMENTALS

by Partyka, Joyner, Rimelspach, Carver
Illustrates plant identification characteristics. Organized in two basic sections: plant identification and plant disorders, this text utilizes 430 color photos, 430 line drawings and 45 black and white photos to simplify identification. **\$32.50**



345 - COST DATA FOR LANDSCAPE CONSTRUCTION 1988

Kathleen W. Kerr, Editor
An updated unit cost data reference for designers and cost estimators. Developed to fill the tremendous need for detailed landscape construction cost data. Laid out in easy-to-use CSI format. Annual. **\$35.00**

300 - LANDSCAPE DESIGN: A PRACTICAL APPROACH

by Leroy Hannebaum
Geared for the commercial designer/salesperson, this is a one-stop guide to the landscape design process. Covers the entire highly competitive field including design analysis techniques, pointers on land forms, specialized business landscaping methods, environmental design guidelines, specifications, estimations, bids. **\$37.00**

305 - LANDSCAPE MANAGEMENT

by James R. Feucht and Jack D. Butler
Planting and Maintenance of Trees, Shrubs, and Turfgrasses. Describes the basic principles of cultural management of installed landscapes. The important factors of plant growth, soils and fertilizers, improved planting techniques and new pruning techniques, integrated pest and disease management, and spray-equipment calibration and care are all featured. **\$29.95**

370 - LANDSCAPE OPERATIONS: MANAGEMENT, METHODS & MATERIALS

by Leroy Hannebaum
An in-depth examination that combines technical training in landscape science with methods of accounting, business management, marketing and sales. Discusses effective methods for performing lawn installations, landscape planting and maintenance. Step-by-step accounting calculations are explained in simple terms. **\$34.00**

365 - LANDSCAPE PLANTS IN DESIGN

by Edward C. Martin
An annotated photographic guide to the design qualities of ornamental plants and their aesthetic and functional use in landscape designing. Over 600 trees, shrubs, vines, ground covers and turfgrasses are described in nontechnical language. Over 1900 photographs. Provides a basis for selecting the best plant materials for any particular use in landscape design. Contains detailed indexes that provide quick reference to particular design qualities and growing conditions. **\$58.95**

375 - RESIDENTIAL LANDSCAPES

by Gregory M. Pierceall
An excellent reference for individuals involved in the design and development of plantings and constructed features for residential sites. Illustrations and actual residential case study examples are used to communicate graphic, planning and design concepts which are the focus of this text. **\$41.00**

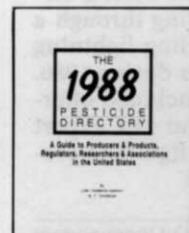
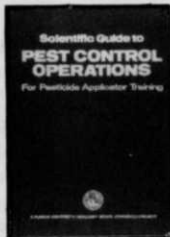


565 - WEEDS

by Walter Muensch
Second edition. Premier text for identification and basic natural history for weeds found in the continental United States and Canada. Ecological data on weed biology combined with excellent keys and plant descriptions make this an essential reference book. **\$39.95**

125 - SCIENTIFIC GUIDE TO PEST CONTROL OPERATIONS

by Truman, Bennett, Butts
Provides a sound basis for studying the technical aspects of pest control. Covers pesticides, safety, health and environmental concerns, equipment, flies and mosquitos, rats and mice, birds and much more. **\$35.00**



500 - THE 1988 PESTICIDE DIRECTORY

by Lori Thomson Harvey and W.T. Thomson
A Guide to Producers and Products, Regulators, Researchers and Associations in the United States. For the person who needs to know anything in the United States pesticide industry. Includes Basic Manufacturers and Formulators with their products, key personnel, managers, district/regional offices and other pertinent information. For United States pesticide information in one place, this directory is a must. **\$75.00**

Mail this coupon to: Book Sales
Edgell Communications
One East First Street, Duluth, MN 55802

Name _____
Street Address _____
P.O. Box Number _____
City/State/Zip _____
Phone Number () _____
Purchase Order Number _____
Signature _____ Date _____

Please send me the following books. I have enclosed payment* for the total amount.

Please charge to my Visa, MasterCard or American Express (circle one)

Account Number _____ Expiration Date _____

BOOK NUMBER AND TITLE	QUANTITY	PRICE	TOTAL PRICE

*Please add \$3.00 per order plus \$1.00 per additional copy for postage and handling.

Please allow 6-8 weeks for delivery.

Prices subject to change.

Quantity rates available on request.

(postage & handling)

Total Enclosed _____

LM

Protecting trees from lightning shock

by Robert E. Cripe

Bill Graham Jr., chief horticulturist with the Morris Arboretum in Philadelphia, decided to include tree lightning protection in one of the arboretum's workshops two years ago.

He wished to include classroom instruction and an actual installation of lightning protection in several trees. I became interested and decided to help with the workshop.

The 175-acre Morris Arboretum at the University of Pennsylvania, consists of rolling hills, rose gardens, greenhouses, statues, ponds, step waterfalls where trees, shrubs and other plants are grown and preserved for scientific and/or educational purposes.

Installing a tree system

The tree we chose for the installation was a stately Bender Oak approximately 80 feet high with a 75-foot spread.

To design this system in accordance with codes, the tree needed two standard download cables and two separate grounds, since the tree trunk was more than three feet in diameter.

Three climbers ascended to the uppermost branches of the three main trunk extensions to install three main or standard air terminals and download conductors. They were to terminate at the base with two grounds leading from the trunk below grade 180 degrees apart out some 40 feet beyond the tree's drip line.

To provide the tree with umbrella protection, four miniature air terminals and miniature cables were installed on four of the main branch extensions.

Air terminals were fastened to the ends of the standard conductors. They were then pulled up into the main trunk extensions by the three workmen. The air terminals were fastened to main trunk extensions as close to the upper ends as safety would permit, to provide secure fastening.

Drive-type cable fasteners were used to fasten these standard cables to the main trunk extensions every three feet. Cables were not pulled tight but allowed to flow in a gradual downward course following the contour of the trunk extension branches. After the standard cables were brought down to the main crotch of the tree, the climbers ascended to the main branch areas and started installing the miniature air terminals on the uppermost parts of the branches. They then secured the miniature cables down to the branches where they interconnected with the main standard conductors.



With ropes and copper lightning conductor cable in place, the workmen are ready to climb the tree, drop a rope and pull the standard copper cable with point attached to one of the top main trunk branch extensions.

Copper vs. aluminum

Copper air terminals and cables are always used in tree systems. Aluminum conductors or cables are not used for several reasons, the first being that codes and specifications recommend copper cables because of their tensile strength. Aluminum conductors become brittle from the bending and swaying motion of trees.

Another factor is corrosion. Aluminum cables and accessories, when in contact for extended periods with moisture from decaying leaves, moss or just from the moisture absorbed by tree bark, could eventually cause corrosion and deterioration of the system.

Aesthetics are another factor. Copper materials tend to discolor with age and eventually blend in with the bark of the tree, whereas aluminum materials are always bright and shiny and tend to draw attention to the aluminum system rather than the aesthetic beauty of the tree itself.

Grounding

While the climbers were installing the air terminals and tree conductors, workers on the ground were installing the grounding system. Each ground terminal consists of a minimum 1/2-inch diameter by 10-foot length copperweld ground rod driven 10 1/2 to 11 feet into the ground out beyond the main root area and beyond the drip line. The ground cable is laid in either a trench six to 12 inches below grade. Or in the case of sodded areas, a spade may be inserted into the ground and a small slit or envelope-type insertion made, allowing the cable to be slipped into the pie-shaped insertion and the sod tamped back in place.

For driving the 10-foot length ground rods, we used a special ground rod driver consisting of a three-foot length of a 1/2-inch steel pipe open on one end. A heavy steel weight is welded onto the other end, similar to a fence post driver used by farmers.

As we drove the ground rod, we periodically measured the ground resistance, since several of those assisting with the ground aspect of the system were not familiar with measuring resistance. This resistance was measured by an ohm meter, providing a direct calibrated reading which eliminated further calculations or interpolation. Code requirements and standards in the lightning protection field state that a newly-driven ground should be in the neighborhood of 50 ohms or less—the lower the ohms resistance reading, the better the ground.

At three feet deep, we took a reading of 450 ohms resistance. At six feet, the resistance was 375 ohms. At eight feet we hit rock or shale and could not drive the ground rod deeper. This gave us an opportunity to use an alternate grounding method—multiple grounds, as provided for in the code.

At a distance of six to 10 feet from the eight-foot-deep ground rod, we drove another ground rod interconnecting the two in parallel fashion. The reading was 50 ohms ground resistance at that point. The 10-foot grounding electrode on the opposite side of the tree was driven to its full depth without difficulty. The ground resistance reading on this ground was 25 ohms. Both standard download conductors were tied to their respective grounding electrodes and the three standard main download conductors interconnected at the base of the tree. Then, the ground resistance on the entire tree lightning protection system was less than 15 ohms. Additional grounding virtue was obtained by interconnecting the system with an underground abandoned irrigation pipe located near the base of the tree about four feet from one of our ground cables. By 4:30 p.m., the installation was completed.

Bill Graham, Harold Rosner, Lewis Randall and the staff of Morris Arboretum received funding through a federal grant for installing lightning protection on four trees during 1986. The grant application included offering to train arborists and tree expert firms on how to install lightning protection systems in trees.

Robert E. Cripe is president of Independent Protection Co., Goshen, Ind.

A broad spectrum of proven performers.



Always read and follow instructions on package before using any chemical product.

*BAYLETON is a Registered TM of Bayer AG, Germany

Put your concerns about turfgrass disease to rest with the proven performers from LESCO.

Choose sprayable or granular fungicides for preventative and curative control. And for enhanced safety and convenience, LESCO offers several new dispersible granule formulations.

The complete line delivers the broad spectrum protection fine turfgrass deserves. All at a competitive price.

If turfgrass disease is the problem, the proven performers from LESCO are the cure.

Order now. Contact your LESCO sales representative, visit the nearest LESCO Service Center or call toll free.

LESCO

(800) 321-5325 (800) 362-7413
NATIONWIDE IN OHIO

LESCO, Inc., 20005 Lake Road, Rocky River, Ohio 44116 • (216) 333-9250

PROBLEM MANAGEMENT

by Balakrishna Rao, Ph.D.

For early green-up...

Problem: At our University in New York State, we have two problems with the spring fertilizer application for athletic fields. One problem is that our groundcrew's workload in April and May is extremely heavy with preparations for Commencement and other spring activities. The second problem is one of wet conditions in certain areas of our athletic fields which we cannot, at this time, afford to drain. As a result, I would like to apply our spring granular fertilization while the ground is still frozen. We use a granular blend with a 50 percent slow-release nitrogen. What is the earliest date of application that could still be effective?

Solution: One solution to your problem is to consider applying fertilizers in the fall. If your late fall fertilization coincides with the last mowing, which is ideal timing, we have seen response from that application the following spring until the first of June. Similar observations have been reported from several universities and several other green industry personnel.

For early green-up, enhanced root development and density in the spring, it would be necessary to apply at least 1¼ lbs. of nitrogen per 1000 sq. ft. during the late fall fertilization. Since late fall fertilization may hold color response through the month of May, ideally it would be necessary to treat again in late May to maintain turf quality. Reports also indicate that a light application of fertilizer in very early spring would help recuperation from winter injury and/or injury from low-temperature diseases.

From your comment, I understand that it would be difficult to fertilize in early spring due to spring school activities. Therefore, your planned approach of applying fertilizers in early spring with a slow-release fertilizer would be an alternative choice. Assuming that you will continue to get green-up response from your late fall fertilization, an application of slow-release fertilizer in early spring (February/March) should help maintain turf quality.

In my opinion, since you would be applying in early spring, it would be necessary to apply at least 50 percent or higher of slow-release nitrogen to obtain sufficient residual. If late fall fertilization was made last year, consider using 50 percent slow-release nitrogen with 50 percent or less of quick-release in February/March to get some immediate green-up response.

Remember that soil type and exposure to extremes in moisture and temperature can also partially contribute to turf color, density and overall quality.

Concerning your wet areas, installing drainage tiles is the most effective remedy, although the system is time-consuming and expensive. If this is too expensive or impractical, consider installing vertical drainage systems. Drill vertical holes two to three ft. deep with a post-hole digger or an augur, and fill them with pea gravel, covering the top with soil and turf. It would be necessary to drill holes beyond hard

pan in order to drain the excess moisture out of the surface area.

Pruning elm trees

Problem: We have an American elm in need of pruning. When is the best time of year to do this? Are disease-carrying elm bark beetles attracted to pruning wounds? When is the best time to spray for these pests?

Solution: The best time for pruning elms would be in the late fall or winter. Reports indicate that elms pruned during July, August or September are more apt to get Dutch elm disease which is spread by elm bark beetles. Beetle emergence and number of brood per year may vary from one geographic location to another.

In general, adults emerge in late spring and may have two to three broods. Therefore, it is best not to prune during beetle activity period which may be from May to September, depending upon the region.

The answer to your second question is yes: the beetles are attracted to pruning wounds. As far as the timing for managing these pests, an understanding of beetle life history and their activity would be helpful. The European elm bark beetle and the native bark beetle are the two most important vectors in transmitting Dutch elm disease through their feeding activity. European elm bark beetles feed primarily on smaller branches on the upper crown. They overwinter as larvae in dead or dying trees and stumps, pupate in the spring and emerge as adults in late spring. Native bark beetles primarily feed on larger branch crotches, overwinter as an adult in dead or dying plants or stumps and emerge in spring.

It is important to provide target sprays where these beetles are feeding on the tree. A good coverage is very important.

Reports suggest that severely infected trees should be removed by May 1 and the remaining healthy trees should be protected by spraying for bark beetles and providing fungicide injections. Insecticide sprays should be applied prior to beetle emergence in spring. This would be before May 15 in most places. In addition, repeat applications may be necessary to manage the future broods (generally around July). Read and follow label specifications for best results.



Balakrishna Rao is Manager of Technical Resources for the Davey Tree Co., Kent, Ohio.

Questions should be mailed to Problem Management, LANDSCAPE MANAGEMENT, 7500 Old Oak Boulevard, Cleveland, OH 44130. Please allow 2-3 months for an answer to appear in the magazine.

Club Car's Full Line Of Electric & Gasoline Utility Vehicles



Carryall I.

The Multi-Purpose Vehicle

Out Performs - The Carryall I is available in Gasoline or Electric power - the Gasoline 4 cycle/341cc Engine* is the largest in the industry. The Electric powered Carryall I has components especially manufactured for Club Car, and they provide 25% greater efficiency than the competitors.

Out Maneuvers - The Carryall I has the tightest clearance circle in the industry - 17'6". The True Rack & Pinion Steering* provides a "power steering feel".

Out Toughs - The Carryall I Electric and Gasoline each have exclusive Rust-Free Aluminum Pickup Bed & Frame* making them virtually maintenance free. A heavy duty front bumper and side rub rails give added body protection.

Carryall II.

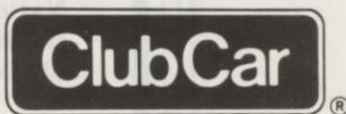
The Heavy Duty Leader

Out Hauls - With the Largest Pickup Bed* (50"x50"x11"/16½ cubic feet) and biggest gross payload (one-half ton) in the industry, the Carryall II becomes the most functional, practical and economical vehicle around.

Out Pulls - Club Car's 4 Cycle/341 cc Gasoline Engine*, the largest in the industry, gives the Carryall II the power to haul one-half ton loads all day long without refueling.

Out Lasts - The Carryall II exclusive Rust-Free Aluminum Pickup Bed & Frame* are virtually maintenance free, and the Double Wall Pickup Bed Construction* of light-weight aluminum allows for a longer more productive life span.

* Club Car Exclusive Features.



Club Car, Inc./P.O. Box 4658
Augusta, Georgia 30907-0658 U.S.A./404-863-3000

Circle No. 106 on Reader Inquiry Card

PRODUCTS

Utility vehicle is a 'work-a-haulic'

The new Mule 1000 from Kawasaki is said to be a "work-a-haulic with lots of pizzazz to boot."

The machine is a cross between an all-terrain vehicle and a pick-up truck with a total load capacity of 1000 pounds. It will travel at speeds up to 25 mph.



The machine has applications on golf courses, schools, colleges, airports, city parks, resorts, hotels, sports stadiums and more.

A dual-mode differential is optional. With one flip of a dashboard lever, the operator can lock the differential so both rear wheels turn to-

gether for maximum traction. Unlocked, the wheels provide a tighter turning radius and minimal soil disturbance.

Circle No. 190 on Reader Inquiry Card

Disease detection kit enhances fungicide ability

Getting the jump on brown patch this year will be easier with Agri-Diagnostics' Turf Disease Detection Kit for brown patch. Catching the disease before visible symptoms appear increases the effectiveness of Banner fungicide preventive applications.

Ciba-Geigy, producer of Banner, endorses the use of the brown patch and other turf disease detection kits in conjunction with an effective spray program. According to Ciba-Geigy, best results for Banner in 1987 resulted when applications were made before disease symptoms developed.

Agri-Diagnostics also makes pythium blight and dollar spot detection kits.

Circle No. 191 on Reader Inquiry Card

Turf fertilizer contains four nitrogen sources

Total fertilizer from the Doggett Corp. is a concentrated water soluble, liquid-applied formula containing four forms of nitrogen: nitrate for rapid uptake; ammonium and urea for moderately fast uptake and a percentage of ureaform for controlled release.

The formula also contains che-



lated iron and calcium. The formulation has a low salt index and is chloride free. The 35-5-6 formulation is designed for low-volume application.

Circle No. 192 on Reader Inquiry Card



A GREAT TRAILER for TURF MANAGEMENT!



There is a Capacity to Fill Your Needs from 1-Ton to 5-Ton

Steel structured for maximum life and minimum maintenance. Wells Cargo trailers are an easy, economical, efficient way to haul nursery stock, fertilizer, seed, sprayers, implements, mowers... everything your job requires.

We have manufacturing sales & service facilities in IN, GA, TX, & UT and a national network of dealers to serve you.

For FREE literature call TOLL FREE 1-800-348-7553 or write

Wells Cargo, Inc.
P.O. Box 728-595
Elkhart, IN 46515

Circle No. 145 on Reader Inquiry Card



If you're an interior landscape expert, you should be promoting your competence with the help of this seal.

Scores of interior landscape industry leaders are now qualified to use this seal. If you're an interior landscape professional write for information on how you can qualify to become a Certified Interior Horticulturist.

National Council for Interior Horticultural Certification,
115 Abbot Street, Andover, MA 01810
(617) 475-4433.

Landscape Exposition

THE THIRD ANNUAL



October 22-24, 1988

Nashville Convention Center / Nashville, Tennessee

The Green Industry's Most Far-Reaching Event

Your customers will be there

Exhibit in Landscape Expo and you'll reach commercial and residential lawn care specialists; university and park grounds superintendents; golf course managers; sports field managers; landscape contractors and many more. You'll meet decision-makers from around the country who are interested in buying new power equipment; chemicals; seed; fertilizers; irrigation systems; vehicles; accessories and services. Dollar for dollar, you won't find a better advertising value!

Timely seminars

Acknowledged experts will offer answers and solutions to the technical, managerial and regulatory problems facing every segment of the landscape industry.

Industry strength

Landscape Exposition is sponsored by Landscape Management and Lawn Care Industry, the leading publications in the green industry. They will spearhead the promotional campaign, assuring maximum penetration into this market.

Fall timing

You'll meet your customers when they've just concluded a successful season and have funds available to buy for next year.

An unbeatable location

Nashville occupies a unique position in the heartland of America — within driving distance of dozens of major cities, and a short plane hop from many more. And because Tennessee is a right to work state, you'll save on labor costs. Attendees will be drawn to Nashville's many attractions, and the full spectrum of accommodations — from luxury hotels to KOA Campgrounds — make it the perfect spot for a family vacation.

Weekend dates

Attendees can get away from their businesses and bring the family for a relaxing getaway. Discount coupons from local shops, restaurants and attractions will add to the fun.

Exciting incentives

Prizes, giveaways and in-hall entertainment will create an upbeat, exciting atmosphere during all three days of the show.

Plan to be there — reserve space today!

Your customers will be at the Landscape Exposition in Nashville — you should be there too! For a complete exhibitor prospectus and floorplan call Becky Lerew, Show Manager or Mary Sue Christoffers, Sales Manager at (203) 853-0400 or write to Landscape Expo, 50 Washington Street, Norwalk CT 06854.

Produced by

**EDGE
EXPOSITIONS**

Sponsored by Landscape Management and Lawn Care Industry Magazines

Circle No. 125 on Reader Inquiry Card

MAY 1988/LANDSCAPE MANAGEMENT 75

Sweeper line detailed on full color brochure

Parker Sweeper is offering a full color brochure detailing its Trailing Sweeper product line. The line includes the Hitch-N-Sweep, Arlington, Trailette, Suburbanite and Estate Master.

Trailing sweepers feature heavy-duty cast iron wheels, deep treaded tires, sintered iron pinion gears for added equipment life, tubular steel frame construction and heavy duty rear swivel casters for maximum basket support.

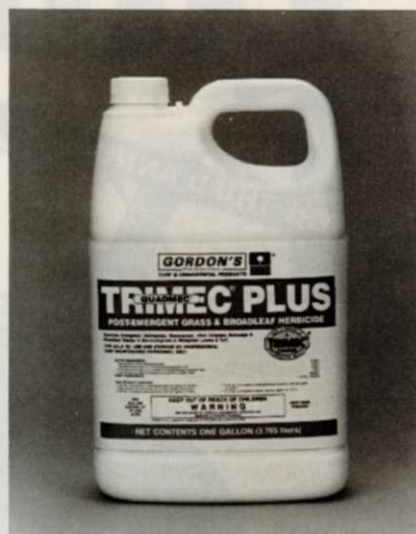
Three of the models feature the E-Z Dump basket. The basket is of tear- and mildew-resistant reinforced vinyl with a heavy gauge polypropylene bottom for long wear.

Circle No. 193 on Reader Inquiry Card

Post-emergent stops grassy, broadleaf weeds

Trimec-Plus from PBI-Gordon has post-emergence action on both grassy and broadleaf weeds. The Trimec/MSMA combination controls nut-

sedge, crabgrass, goosegrass, dallisgrass and other grassy weeds along with broadleaf weeds in turf.



The free-flowing formulation is labeled for use on Kentucky bluegrass and Bermudagrass lawns, and has tested safe on tall fescue and zoysiagrass, according to the company. It should not be used on St. Augustine, centipede or carpetgrass.

Circle No. 194 on Reader Inquiry Card

Edger-Trimmer zooms up to 90 feet/min.

The Little Wonder Edger-Trimmer speeds along at up to 90 feet a minute with high performance cutting, according to its manufacturer.

With an easy adjustment, the blade



swings horizontal, converting the edger to a trimmer. Maximum durability is assured with a cast iron cutter head, rugged steel frame and a 10-inch hardened tool steel blade.

Circle No. 195 on Reader Inquiry Card



Don't Let The Rain Wash Away Your Profits.

Use the Proven Erosion Fighter!

Hydro Mulch® 2000 fiber is THE hydraulic mulch and tackifier combination that can help keep the green on your job... and in your pocket.

Here's why:

- Hydro Mulch® 2000 fibers have been independently lab tested and field proven to substantially reduce seed bed erosion caused by rainfall.
- Hydro Mulch® 2000 fibers mean outstanding all-around performance. Mulch and tackifier are specially "premixed" for error free loading and consistent ground coverage. There are no variable, hidden costs and unpredictable applications found with separate tackifiers.

Don't watch your profits and customers wash away. Use the proven erosion fighter! Hydro Mulch® 2000.

CONWED
FIBERS

Hydro Mulch® fiber is a registered trademark of Conwed Fibers, a division of Leucadia, Inc.

1985 Tate Blvd. S.E.
Suite 350
Hickory, NC 28601

For more information,
write or call
(704) 327-6670

Circle No. 107 on Reader Inquiry Card

Waterless hand cleaner removes stains, residues

Hand-Y-Kleen from Spectrum Technologies is a waterless hand cleaner designed to remove pesticide stains and residues. It also cleans grease, grime and oil stains.

Hand-Y-Kleen removes most pesticide stains while leaving hands smooth and clean. Since it requires no water and is packaged in 22-oz. tubes, the cleaner is convenient for applicator use in the field when away from water sources.

Hand-Y-Kleen is designed for pesticide applicators, growers and landscapers.



Circle No. 196 on Reader Inquiry Card

Forklift loads itself with landscape material

The Piggyback Material Handler from Teledyne Princeton lifts and loads sod and other landscape material and then loads itself onto a truck or trailer for transport home.



The Piggyback weighs 3,500 lbs. and can lift and load up to 5,500 lbs. It

turns quickly, carrying the weight between its drive wheels for stability on grades.

Options include two-stage mast, barrel clamp, scoop, concrete forks, hydraulic hole-digger and side-shifter.

Circle No. 197 on Reader Inquiry Card

Two-wheel lawn tractor improved for 1988

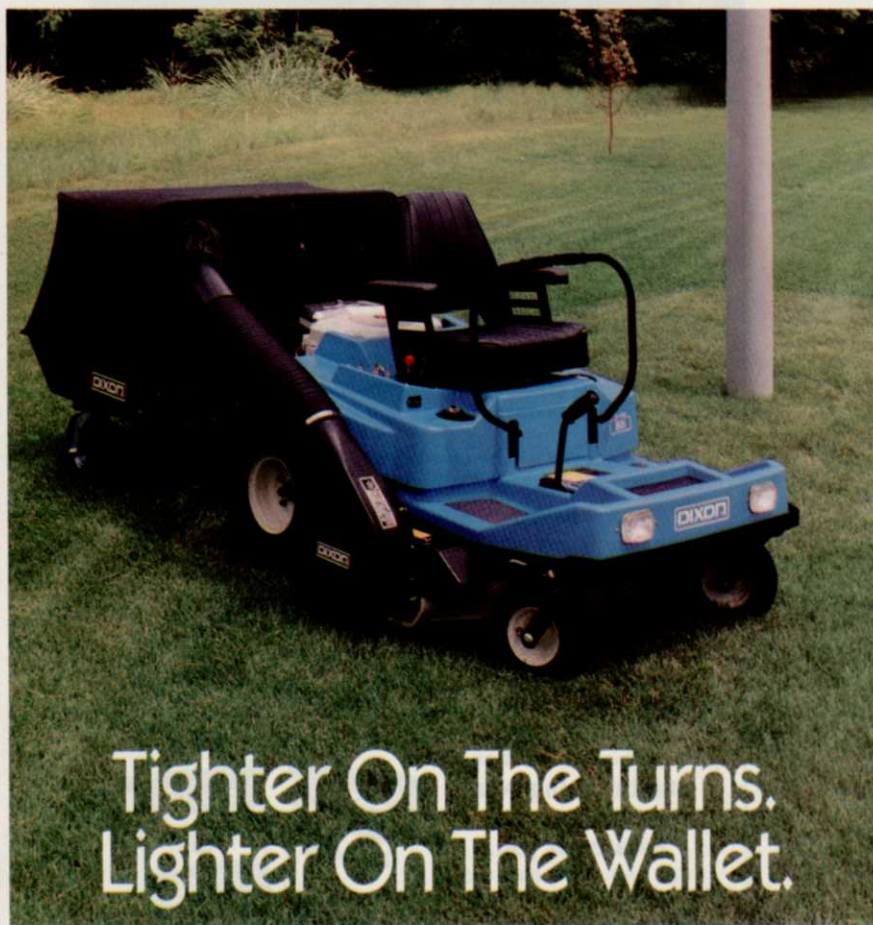
Gravely has improved its two-wheel lawn and garden tractor for 1988. Im-

provements include placing the control levers atop the handlebars, a PTO clutch brake and the addition of a positive shift two-speed range control.

The tractor also features a new positive shift PTO control, instrument panel grommets, and the option of an eight, 10, 12 or 16 hp Kohler engine. The warranty has been increased from one year to two years.

The electric start eight hp model features a slanted hood. All models have the option of an adjustable handlebar.

Circle No. 198 on Reader Inquiry Card



When we developed the Dixon ZTR® 501 commercial riding mower, we were trying to make it more maneuverable and responsive, not less expensive.

But it happened. The efficient, finely engineered Zero Turning Radius design of the 50", 18-hp 501 also produced a price well below most competitive models.

So you're not just buying a long-lasting machine that's uniquely responsive to its operator's wishes, from the people who pioneered ZTR maneuverability for the home. You may also be buying a couple of extra string trimmers with the money you save.

See your Yellow Pages or call 1-800-635-7500.



Zero Turning Radius Mowers
Box 1569 Coffeyville, KS 67337-0945

A Coleman COMPANY

Circle No. 112 on Reader Inquiry Card

We Create Beauty...



...Naturally

OTTERBINE® Aerators blend beauty and efficiency. These efficient, compact, self-contained units can help you control unsightly algae growth and its odors.

In addition to their aesthetic appeal, OTTERBINE Aerators serve as an on-going water management tool — improving your overall water quality while dramatically reducing or eliminating the need to apply chemicals.

Available in a wide variety of models and spray patterns, the aerators can be used singly or combined to create magnificent aquatic displays. By adding night lighting (OTTERBINE'S FOUNTAIN-GLO Lighting System) you create unparalleled nocturnal effects.

ALL OTTERBINE Aerators are safety tested and approved by the Electrical Testing Laboratory and are simple to install, economical to operate and maintain.



For more information call or write to:

Barebo, Inc.

P.O. Box 217, R.D. 2, Emmaus, Pennsylvania 18049 • 215/965-6018

PHOTO — STONEY POINT PLAZA — RICHMOND, VA

CLASSIFIEDS

RATES: \$1.10 per word (minimum charge, \$25). Bold face words or words in all capital letters charged at \$1.35 per word. Boxed or display ads: \$90 per column inch-1x (one inch minimum); \$85-3x; \$80-6x; \$75-9x; \$70-12x. Agency commissions will be given only when camera-ready art is provided by agency. For ads using blind box number, add \$10 to total cost of ad. Send ad copy with payment to Dawn Nilsen, LANDSCAPE MANAGEMENT, 1 East First Street, Duluth, MN 55802 or call 218-723-9200.

BOX NUMBER REPLIES: Mail box number replies to: LANDSCAPE MANAGEMENT, Classified Ad Department, 1 East First St., Duluth, MN 55802. Please include box number in address.

BUSINESS OPPORTUNITIES

LAWN CARE COMPANY FOR SALE. Philadelphia area, 300 accounts, can expand easily. 1985 Great Northern Spray truck in excellent condition. 215-464-1616, evenings. 6/88

PALM BEACH & WEST PALM BEACH FLORIDA - Landscape Maintenance Company full service. Est. 1980. Be your own boss. Will train some financing. Call Today (305)627-8141. 5/88

WANT TO BUY OR SELL a golf course? Exclusively golf course transactions and appraisals. Ask for our catalog. McKay Golf and Country Club Properties, 15485 N. East Street, Lansing, Michigan 48906. Phone (517) 484-7726. TF

HELP WANTED

Equipment Sales, New Jersey machinery manufacturer seeking aggressive individual with mechanical and horticultural aptitude for sales position. Primary responsibility will be inside sales, however, travel will be required. Company offers excellent benefits and profit sharing. Send resume to LM Box 450. 5/88

IRRIGATION DIVISION MANAGER: Relocate to beautiful Minnesota. Top Mpls. commercial landscape co. needs experienced irrigation professional familiar with all aspects of design and installation. Salary and benefits commensurate with ability and experience. Position immediately available. Send work/salary history to: Minnesota Valley Landscape, 9700 W. Bush Lk. Rd., Mpls., MN 55438. (612)944-1626. 5/88

GROUNDS MANAGER - Well established, quality conscious, real estate development and management firm requires full time Grounds Operation Manager for all seasons management of large corporate office parks located primarily in the lower Connecticut/Westchester/Putnam, New York area. **Applicant** must have minimum five years experience in care and management of trees, shrubs, turf and pavement. Knowledge of and ability to administrate contracts. A working knowledge of site work and irrigation systems. Individual must have good communication skills and ability to deal with labor as well as executive staff. **Growth position.** Salary open. Send resume and salary requirements to: Grounds Management, Box 269, 324 Main Street, Norwalk, Connecticut 06851. 5/88

POSITIONS AVAILABLE for motivated individuals at all levels in growing landscape company. Full-time or part-time, seasonal or year round. Long Island Green, Inc., South Hampton, NY 516-283-8075. 6/88

MANAGEMENT

Due to our aggressive expansion program in the midwest, east coast and southwestern regions, we are needing management personnel for all phases of our tree & shrub and lawn care services, in both residential and commercial operations. If you are "Results-Oriented" with a strong desire to achieve and high personal goals, send resume including salary history to:

Corporate Recruiter
Ever-Green Lawns Corp.
1390 Charlestown Ind. Dr.
St. Charles, MO 63303

Landscape Supervisor: Established Michigan Contractor looking for self-motivated individual with 5 years minimum experience to manage crews and oversee landscape installation. Send resume and salary requirements to: DeAngelis Landscape Incorporated, 22425 Van Horn Road, Woodhaven, Michigan 48183. 5/88

IRRIGATION. General managers, foremen, installers. We seek ambitious people who want to move up the ladder. Our training schedule allows you to advance quickly. We have opportunities in five midwest locations. Send us your resume and objectives. The Lawn Pros Sprinkler Co., 3508B Roger B. Chaffee Blvd., Grand Rapids, MI 49508. 12/88

ARE YOU A NATURAL?

Then bring your talents to us. We're Sav-A-Tree, one of the fastest growing arboricultural service companies in the industry, specializing in natural, holistic tree and shrub care.

We are dedicated to excellence and are seeking ambitious, detail oriented individuals to join our expanding sales force.

SALES MANAGER

Experienced manager needed to direct and motivate our sales force. As a member of our management team your responsibilities will include: major account management, sales forecasting and budgeting, marketing, recruitment and training. Candidates should have an undergraduate degree or equivalent and an in-depth knowledge of arboriculture.

FIELD SALES REPS.

Ideal candidate will have a college degree in horticulture or a related field and a strong desire to succeed. Previous sales experience is a plus.

All positions offer outstanding compensation including salary plus commission and a complete benefits package.

If you are looking for the opportunity to put your natural abilities to work, send your resume with salary requirements to:

Personnel Department
Sav-A-Tree of Westchester, Inc.
P.O. Box 527
Armonk, NY 10504-0527



Orkin Lawn Care Division is looking for managers to manage in Florida. Orkin now has ten branches in Florida with plans to expand. Excellent opportunity to develop into multi-branch responsibilities. If you are an experienced green industry manager who seems stagnated in their present job or a person who is tired of the cold weather and seasonality of the business, we may have just what you are looking for. Excellent opportunities and advancement potential also for Service Managers, Sales Managers and Turf Specialists. Send your inquiries and resumes to Paul Ferrara at 957 1/2 N. Pennsylvania Ave., Suite 202, Winter Park, Florida 32789 or call (305) 740-6872. 6/88

JOIN THE AMERICAN TEAM - And go for the gold...Aggressive landscape company looking for aggressive career minded winners of landscape/irrigation sales; estimating; purchasing; supervision nursery production and sales. Salary and benefits commensurate with experience. Equal opportunity employer. Send resume to Mickey Strauss, American Landscape Companies, 7949 Deering Ave., Canoga Park, CA 91304 (818)999-2041. 5/88

Lawn sprinkler company needs experienced and dependable foreman. Year-round work. \$25,000 minimum salary with excellent benefits. Send resume to Trost Irrigation, Inc. 2551 W. Auburn, Auburn Hills, MI 48057 (313) 853-5151. 6/88

PERSONNEL: Hydro Lawn, a Mid-Atlantic full service lawn care company is accepting applications for Sales/Customer Service management positions. Applicants must be aggressive, responsible, neat and experienced in sales/customer service. Compensation from \$25-35,000 plus full benefit package. Send resume to: Hydro Lawn, Inc., 7905 Airpark Road, Gaithersburg, Maryland 20879. TF

TRAINEES & FOREMEN: Washington D.C. area design-build firm is looking for career minded individuals who want to learn top of the line residential landscaping-construction, planting & landscape maintenance. We need professionals who are willing to work and can produce. We work a 4-5 day week and offer good pay with benefits. Send resume with references to: Garden Gate Landscaping, 821 Norwood Road, Silver Springs, MD 20904. Attn: Jim Seipel. 5/88

Established Central Florida landscape contractor has an opening for a highly qualified operations manager for its maintenance division. Ability to schedule, organize and manage people in a rapidly growing organization. Heavy field experience and a commitment to quality work required. Opportunity for an aggressive person to be a key member of a top-notch team. Excellent salary and benefits. Call Mr. Singh (305) 831-8101. 5/88

HELP WANTED - Fine Grade Box Operator - Expanding landscape firm in Northern Virginia area seeks knowledgeable individuals for permanent position. Salary commensurate with experience; many benefits plus bonus opportunities. Send resume with complete background experience to: S. Burton & Co., Inc., P.O. Box 147, Hartwood, Virginia 22471. 6/88

We are looking for a Landscape Foreman with experience in leading and working with installation crews. Duties include job estimating, reading blueprints, staking jobs, and pruning. We are located in the heart of the Blue Grass State of Kentucky. Family owned business since 1841. Benefits include paid vacation after 1 year, health insurance plus profit sharing. Your salary is negotiable depending on experience. Contact Stephen Hillenmeyer, C/O Hillenmeyer Nursery, 2370 Sandersville Road, Lexington, KY 40511. 5/88

LANDSCAPE MAINTENANCE SUPERVISORS AND FOREMEN - Heyser Landscaping, Inc., a prominent landscape contractor in the Philadelphia, Wilmington, Allentown area is seeking experienced personnel in all phases of landscape maintenance, pest management and installation. Contact Heyser Landscaping, Inc., 400 North Park Avenue, Norristown, Pennsylvania 19403, 215-539-6090. 5/88

LANDSCAPE MANAGER OF THE YEAR

co-sponsored by



**LANDSCAPE
MANAGEMENT**
Formerly WEEDS TREES & TURF



1987 Landscape
Manager of the year
Michael Hugg

Entry forms are now being accepted by the Professional Grounds Management Society and Landscape Management magazine for their second annual "Landscape Manager of the Year" award.

Purpose of the award is to recognize superior job performance among landscape managers, to challenge those involved in the industry to achieve higher standards of excellence, and to bring national recognition to deserving managers.

Any person directly responsible for the professional maintenance of one or more landscapes is eligible to enter. Applicants will be judged according to job performance, honors and awards, procedures and philosophies, and contributions to the green industry. Applicants will be asked, at the time of entry, to submit four 5 x 7 black-and-white glossy photos and 10 color 35mm slides of current work areas with a short narrative on each.

(clip and mail)

Applicant's name

Title

Applicant's company

Official entry form should be sent to:

Name

Title

Company

Address

City/State

Zip Code

Mail to: PGMS, Landscape Manager of the Year, 1201 Galloway Ave., Suite 1E, Cockeysville, MD 21030

Cut Your Equipment and Maintenance Costs in Half Without Compromise on Quality or Service!!

We provide you with an inventory of over 2500 quality items - and all just a phone call away, delivered to your door by convenient UPS.



ENGINES (Manufacturers Warranty)

WISCONSIN ROBIN 12HP Vert. w/Free Elect. Start.....ONLY \$429.95
HONDA 11 HP OHV Vert. (GXV340).....As Low As \$425.00
HONDA 4 HP Vert. (GXV120).....As Low As \$229.95
BRIGGS 12HP I/C Vert. (281702).....Only \$349.95
BRIGGS 4HP Vert. (100702).....Only \$139.95
BRIGGS 3HP Hort. For Edgers(80202)-5/8" or 3/4".....Only \$129.95

PARTS (many from OEM Manufacturers)

BOBCAT Complete Gear Box Assembly (BC215).....\$189.95
BC Spindle Bearing (BC008N).....\$4.50
BC Idler Pulley Sm (BC0101A).....\$5.50
Complete Spindle Assemblies.....as low as \$55.95
Pneumatic Fr. Caster Assemblies for 48" Mower.....Now Available
BC Complete Rear Drive Wheel Assembly.....\$49.95
Bell Crank (Rt. & Lt.) (BC006A/BC007A).....\$7.50
6" Yoke Assembly H.D. (BC013AB).....SPECIAL \$10.95
6" Caster Wheel W/Oilite (CAF 620).....\$8.95
BC 48" H.D. 1/4" thick Blade (UB0B5).....\$6.50
48" H.D. 1/4" thick Blade (UB0B6).....\$6.50
BC Blade Belt- Long (GB030).....SPECIAL \$9.95
BC Drive Wheel Belt- Cogged (GB017).....\$12.95
SCAGS 61" H.D. Blade (USCI).....\$7.50
Toro Groundsmaster- over 150 items in stock

EQUIPMENT (TIME TESTED FOR COMMERCIAL USE)

3 HP Commercial Edger (L60).....\$249.95
5HP Thatcher - 5HP (LSM800).....\$599.95
21" "Sensation-Like" Mower w/4HP B&S (LSM101).....\$349.95
SPYKER Spreader - Stainless Steel (64).....\$64.95

ACCESORIES

Commercial Catchers-Best Available.....as low as \$99.95
Tarps - Heavy Duty as low as \$3.50
CORONA #80 Pruners as low as \$12.95
CORONA L7 Shears.....as low as \$23.50
Monofilament Line - Top Grade.....as low as \$6.40/lb
Edger Blades 10x2x1/8".....as low as \$1.25/ea
Safety Glasses -Coated Special \$5.95
KAWASAKI 12.5 A/F Cart. (BAA2021).....Special \$5.95
HONDA 11 HP A/F (BAA888) Special \$5.95

SERVICE TOOLS

NEARY 1/2 HP Blade Sharpener (HFB156).....Special \$289.95
Sudbury Soil Test Kit (7600).....\$42.95
Multi-Seal Tire Sealant 5 Gal. (SL005).....\$169.95

MAIL THIS AD TOGETHER WITH YOUR 1ST ORDER AND SAVE AN ADDITIONAL 2%

For Your FREE Full Line Catalog Call
LANDSCAPERS SUPPLY CORP.

1-800-222-4304/03

Circle No. 148 on Reader Inquiry Card

HELP WANTED



We are recruiting!

We're looking for knowledgeable people in the following areas:

Environmental Care, Inc.

landscape management

Arbor Care

commercial & industrial arboriculture

Interiorscape Division

interior landscape maintenance

Positions available in:

Los Angeles	East Bay	Inland Empire
Sacramento	Santa Ana	Phoenix
San Diego	San Jose	Denver
Houston	Ventura	Colorado Springs
Palm Springs		

Send resume to:

Robert L. Scofield
Personnel Department
24121 Ventura Boulevard
Calabasas, CA 91302

an equal opportunity employer by choice

MAINTENANCE SUPERVISOR - Responsible for maintenance of grounds, athletic fields, and buildings within municipal system. Supervises 15-30 employees. Salary: \$22,200 - \$24,300. Inquire: John Presensky, 705 East State Blvd., Ft. Wayne, IN 46805. 5/88

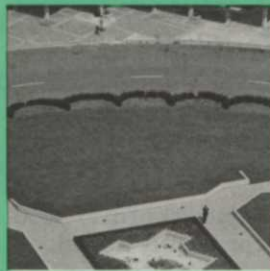
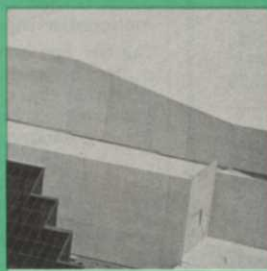
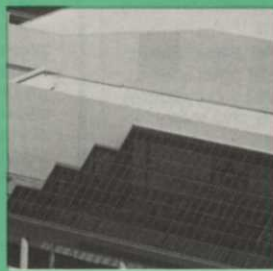
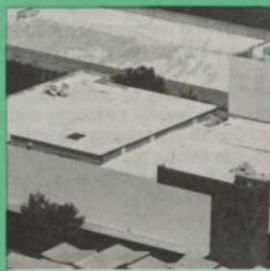
SALES: Landscape Sales person with 1-2 years experience. Individual must be aggressive, motivated and able to work with crew foreman as well as prospective clients. Design ability a must. Contact: Vander Veen Landscape Co., P.O. Box 164, Mason, MI 48854 (517) 676-1093. TF

HELP WANTED

Excellent career opportunity in beautiful area with a great quality of life. If you want top earnings, benefits, excitement, a challenge, responsibility, control, customer contact, quick advancement, work in fabulous award-winning jobs, etc., this job is for you. Temporary housing available. We are the oldest and 2nd largest interior landscaper in the U.S. You will be able to utilize all your abilities, extra bonuses and peaks. Apply in confidence: Call 5pm - 9am to Len Parker (201) 757-0437 or 7am - 5pm Rich or Doug, 1-800-526-3672; in N.J. call (201) 322-5552.

PARKER PLANTScape
1325 TERRILL RD.
SCOTCH PLAINS, N.J. 07076

PEST CONTROL/TURF MANAGER in TAMPA BAY AREA: Experience required. Degree in Horticulture field preferred. Must have clean driving record. Excellent salary and benefits. Send resume to: Gary Eichler, Landcare Industries, 5805 South MacDill Avenue, Tampa, FL 33611. 5/88



Expo 88—Setting the Pace for Tomorrow

Don't miss this once-a-year opportunity to shop the international marketplace for lawn, garden and power equipment products! Come to Expo 88, July 25-27, at the Kentucky Fair and Exposition Center, Louisville.

- Talk directly with more than 500 top international manufacturers and suppliers all under one roof.
- Test products daily in the 450,000-square-foot outdoor demonstration area.
- Discover management, retailing and finance techniques in **FREE** seminars that will cut your business costs and boost your profits.
- See the latest merchandising trends at work in Expo's Model Store.

- Compete for cash and prizes in the All-American Engine Repair Championship.
- Enjoy an evening of down-home entertainment with Nashville's Oak Ridge Boys.

Avoid the onsite registration fee of \$5 by preregistering. Call toll free **800/558-8767** today for detailed information. In Kentucky or outside the United States, call **502/582-1672**.

Or write to:

Expo 88
P.O. Box 70465
Louisville, KY 40270.

expo 88
International Lawn Garden & Power Equipment

HELP WANTED

Landscape Maintenance Operation Manager - Florida's fastest growing landscape maintenance firm with operations in 3 cities is looking for an experienced, quality conscious maintenance professional. Applicants must have proven management ability, ability to communicate well with clients and employees and strong technical background. Opportunity for growth and responsibility advancement. Excellent salary and benefits. Call Mr. Khalsa at 305-831-8101. 6/88

TREE CARE SALESPERSON - B.S. degree preferred in Urban Forestry, Horticulture or related field. We offer Medical Plan, Profit Sharing, Savings Plan and Paid Vacation. Send resume with pay history to Ira Wickes - Arborists, 11 McNamara Road, Spring Valley, NY 10977, 914-354-3400, attention John. 5/88

Landscape Maintenance: Excellent opportunity for career, goal oriented individual to head commercial maintenance division. Must be experienced and willing to assume total responsibility. Send resume with salary history to Bill Pudifin, RJ Sunday Landscaping, Inc., 4311 Church Rd., Mitchellville, MD 20715. All replies will be held in strictest confidence. 5/88

EXPERIENCED LANDSCAPE FOREMAN: Design & Construction Company seeking person with 3-5 years experience. Individual must be able to take total responsibility of projects, from start to finish. Plant knowledge, construction techniques, blue print reading a must. Contact: Vander Veen Landscape Co., P.O. Box 164, Mason, MI 48854 (517) 676-1093. TF

LESCO, INC.

A leader and complete supplier of equipment and products to the Turf Care Industry, is seeking aggressive, mature, customer oriented individuals to join the team as:

SERVICE CENTER MANAGER

This position will have P/L responsibility for the management of a warehouse operation serving the professional lawn care industry; including local sales development, inventory control and accounts receivable. Ideal candidates should have previous experience in the lawn care and/or golf course industries, or possess a horticultural background. Past selling experience helpful.

Positions are available in Long Island, Baltimore, Philadelphia, Washington, Rochester, N.Y., Cincinnati, Pittsburgh, Detroit, Cleveland, Columbus, Akron, Dayton, also in various Florida metropolitan markets.

Our firm has an established growth pattern and record of profit sharing. Interested and qualified candidates should submit resume and salary history in confidence to:

Brad Gerson
LESCO, INC.
20005 Lake Road
Rocky River, OH 44116
Equal Opportunity Employer

Foremen needed in these departments: Landscape Construction, Lawn Care Applicator and Grounds Maintenance. High caliber people needed to lead and assist company doing quality work in the Chicago Area. Excellent pay, complete benefit package and pension plan. If you are dependable and industrious, send resume to: Ray Knoll, Western DuPage Landscaping, Inc., 31W478 Diehl Road, Naperville, Illinois 60540, 312-416-0072. 5/88

Landscape Sales/Design/Project Manager - If you have outstanding talent in your field and are looking for a career opportunity, we would like to talk to you. Florida's most progressive landscape contractor with sales in excess of \$5 million annually is looking for a top shelf landscape professional to help us grow. Proven track record and hands on experience in commercial landscape contracting and sales is a must. Excellent salary, benefits and incentives. Call Mr. Khalsa at 305-831-8101. 6/88

\$1,000,000.00 SALES PERSON - Our top producing landscape salesperson sold \$1.6 million during 1987. We're looking for a challenger, a motivated and overachieving landscape salesperson with a proven track record. If you are looking for top wages, an opportunity to excel, and your background includes sales of quality landscapes and developing client loyalty, call today and accept the challenge. Our 16 year young, award-winning Design/Build firm serves residential and commercial clients in the booming Cleveland, Ohio market area. Call 216-357-8400. 5/88

ServiceMASTER®

If you are in the lawn care business, ...in a related field, or...just looking to get started...

WE CAN HELP YOU GROW!

Our network of over 3600 independently owned franchised businesses worldwide testifies to our ability to help the small business owner to flourish. If you are enthusiastic, growth-oriented, and interested in learning what ServiceMaster has to offer, then we are interested in getting to know you!

For more information call:

Roger Nondorf
ServiceMaster LawnCare
1-800-255-9780

SALES MANAGER - A very aggressive person currently active as sales manager is needed to develop sales for an established and progressive (design/build landscape firm located in the Chicago western suburbs) firm. This person will work closely with a principal of the firm and eventually take over the top management position of vice president in charge of sales. Good salary. Compensation package tied to performance. Equity/ownership possible for the right person. We are interested in only experienced highly motivated professional individuals. Send resume to LM Box 447. TF

COMMAND PERFORMANCE.



Innovation

Competition out there is tough. But you can always count on Ditch Witch equipment to help you keep one step ahead of the other guy. Take the 255sx for instance. It can help you bury sprinkler pipe *without trenching* and with minimal turf damage. In fact, no other lawn plow can outperform it. Now that's innovation!



Ditch Witch®

The Charles Machine Works, Inc.
Perry, Oklahoma 73077-0066
Toll-Free: 1-800-654-6481

Circle No. 109 on Reader Inquiry Card



"Our mowers are the backbone of our business. We use only Buntons."

*Jack Roberts, President
Environmental Landscape Services, Memphis*

"We run 16 crews with 80 people to provide the best care possible for large commercial properties," says Environmental Landscape Services president Jack Roberts. "We depend on our equipment to help us maintain our reputation as one of the best."

Roberts has experimented with other commercial mowers over the years, but now uses only Buntons. At last count he had 29 of them. Here's what the company's supervisors say about Buntun mowers.

Long Life

"We get years of hard use out of our mowers. All of our equipment is two-cycle, so maintenance is simple, there are no fuel mix-ups, we get added torque, and we don't burn up engines when we run them on steep hills," says John Sumner.

Dependability

"The dependability of the mower is incredible," says Leslie Clark. "The design is well thought out and the workmanship is the best I've ever seen. We know our Buntons will start in the morning, run all day and be ready to work tomorrow."

Quality Cut

"We provide a weed-free, scalp-free turf for the highest profile clients in town," says Paul Summers. "We're known for our quality of cut. With Buntun we always get the good, clean cut we need, even under the most demanding conditions."

Track Record

"Year after year, Buntun has proven to be a quality piece of equipment," says Gary Smith. "Serious thought and continuous research goes into all of our purchasing decisions, and we only buy equipment that takes care of us and our customers."

If mowing is the backbone of your business, you need quality equipment that will take care of you and your customers. Call for the name of the local Buntun dealer in your area.

BUNTON CO.

P.O. Box 33247
Louisville, KY 40232 USA
Phone 502/966-0550 • Telex 204-340 • Fax 502/966-0564



Parks and Recreation Superintendent - City of South Bend, Indiana population 109,000. Responsible for direction of 68 parks, (1400 acres), 3 golf courses, 1 zoo, 3 recreation centers, 1 ice rink and 2 outdoor pools. \$4 (+) million budget. Salary: mid 30's. Four year degree in park & recreation required and 7 years experience in park administration, public administration or a related field. Closing date 5-27-88. Send resume to: City of South Bend Personnel Department, 1200 County-City Building, 227 W. Jefferson Blvd., South Bend, Indiana 46601. (219) 284-9124. Complete job description available upon request. Equal Opportunity Employer. 5/88

WANTED - Aggressive Manufacturer's Reps - Manufacturer of agricultural, golf course, municipal and lawn & garden spraying equipment is seeking qualified reps with experience in sprayer sales. Seeking nationwide network, exclusive territory contract, excellent technical support and top of the line equipment. Send resume and current line card to: The Broyhill Company, P.O. Box 475-CB, Dakota City, NE 68731-0475. Phone: 1-800-228-1003. 5/88

SALES MANAGER - Central Jersey Chemical Company seeks take charge sales pro, minimum 8-10 yrs. experience selling in Turf/Ornamental/Agricultural markets. College degree(s) preferred. Coordinate overall national sales programs - reports directly to CEO. Competitive salary and benefit package. Room for professional and personal growth and rewards. Send resume, including salary history information to LM Box 451. 5/88

Southwest's finest landscape management company seeking enthusiastic, motivated individual for Landscape Maintenance Supervisors position. Degree in related field or experience in maintenance and or installation. Opportunities available in Dallas, Houston, Fort Worth. Send resume/work history to: Personnel Administrator, Maintain, Inc., 2549 Southwell, Dallas, TX 75229. 5/88

MANAGER OF SUPPORT SERVICES - Mid-Level Management position, responsible for equipment maintenance, personnel coordination, administrative assistance, and coordination of services within municipal park system. Salary: \$24,500 - \$28,500. Inquire: Dennis Noak, 705 East State Blvd., Fort Wayne, IN 46805. 5/88

Landscape Architects/Supervisors (project foremen) to join a nationally acclaimed firm looking to expand into its second generation Long Island area supports a high budget landscape industry. Year round employment, company benefits and continuing education available. Experienced and aggressive people send resume to: **GOLDBERG & RODLER, INC.**, 216 East Main Street, Huntington, New York, 11743. 6/88

Florida Landscape Contractor in business 15 years, has an opening for an experienced landscape architect or highly qualified sales person to handle design build sales and business development. Applicant must be a self-starter and possess strong sales skills. Unlimited potential in a growing firm with a top notch track record. Contact Mr. Singh (305) 831-8101. 5/88

FOR SALE

LANDSCAPE INSTALLATION/MAINTENANCE COMPANY for sale. Located in booming area north of San Francisco. Year-round moderate climate, twelve years in same location with established clientele. Will train. Call Jeannie Lewis 707-762-2787. 5/88

Dowdeswell model 650 (The Gem) walk behind commercial tillers are available—20", 24", 30"—gas or diesel. Save 10% now, other makes, types, sizes from \$289.95. Let us bid your equipment and service needs! G. Gandy Equipment Services, 2031 4th Ave., Joliet, IL 60433. 815-726-7921. 6/88

Used Brouwer Harvester A-3, 18" roll, Massey 135, electric depth control, rebuilt. \$16,000. Cincinnati, OH 513-769-4061. 5/88

THE AFFORDABLE STUMP CUTTER: Stainless Steel, HEAT TREATED, 5½ lbs., FAST, SAFE cutting. Unique locking system holds 6 grooved carbide teeth removed with one recessed bolt. Compatible with new or old two wheel Gravelly Tractors. Kinetic Stump Cutter Inc., 1220 W. Hawie Street, Jupiter, FL 33458 or (407) 744-0680 after 5 p.m. EST. 6/88

ATTN: GOLF COURSE SUPERINTENDENTS—Bentgrass Sod at putting green height, guaranteed weed and poa annua free. Stormy Acres, West Haven, VT 05743. 802-265-3046. TF

WHOLESALE PARTS & SUPPLIES: Over 3,000 replacement parts and tools in stock at direct wholesale prices. Spark-plugs, edger blades, monofilament cutting line, throttle cables, wheels, tires, tubes, lawn mower blades, shovels, rakes, pruners & more! Call today for a **FREE** catalog & price list. **TOLL FREE** 1-800-356-0171 or 404-438-6072. **GREENLINE DISTRIBUTORS**, P.O. Box 2253, Smyrna, GA 30081. 5/88

FINN HYDROSEEDER—1500 gallon mounted on LN8000 Ford diesel. 4" suction pump mounted on truck for refilling. Both in excellent running condition. \$15,000. Greeno, Inc., Phone 617-897-7244. 5/88

FOR SALE - Bean Sprayer 60 G.P.M. Pump @ 800 P.S.I. 400' 3/4" hose, 2 guns 150 G.P.M. homelite refill pump, extra hose reel motor mounted on G.M.C. Truck with new engine in 8/87. Currently rigged for roadside spraying. Has 4x8 arrow board-O.C. single & double swivel nozzles. \$14,000 negotiable. Also 16" Wayne Chipper 318 Chrysler. Good condition - \$3800.00. Call 607-699-7402. 5/88

SPRAY TRUCK - 1977 + Beam 20-20, 1200 gallon tank plus drop tank + fertilizer tank. 300 ft. hose on electric reel. Good condition. Ask for John. (305) 481-9888. \$4,500. 5/88

Brouwer Sod Harvester, 18 in. mounted on 3600 Ford diesel, \$15,000. Meyers Turf Form, 913-681-2668. 5/88

BRAND NEW TOPSOIL SCREENERS. EXCELLENT FOR CONTRACTORS, LANDSCAPERS OR GOLF COURSES. NO MOVING PARTS, SIMPLE TO USE. SIZES AVAILABLE 8' X 8', \$3,995. AND 12' X 8', \$4,995. NORTH AMERICAN CONTRACTORS 216-799-9725. 10/88

BROUWER-7 Gang PTO mower and new parts. Low use, good condition. \$5,500. **FOLEY**—388 reel sharpener, like new, \$1,500. (405) 771-5122. P.O. Box 424, Spencer, OK 73084. 6/88

BEAUTY IS ONLY SKIN DEEP.



Versatility

Looks can be deceiving. What really matters is what's on the inside, and how it will make your job easier. That's the thinking behind the 2020 riding trencher. Not only can you use it to backfill, but it's less than 36 inches wide, so it will dig just about anywhere you need it to. And isn't that the beauty of versatility? Come take a closer look.



Ditch Witch

The Charles Machine Works, Inc.
Perry, Oklahoma 73077-0066
Toll-Free: 1-800-654-6481

BUILD YOUR PYTHIUM CONTROL PROGRAM ON A FIRM FOUNDATION. CHIPCO® ALIETTE® FUNGICIDE



DUCT NO.

chipco
THE RIGHT APPROACH

ACTIVE INGREDIENT:
Aluminum tris (O-ethyl phosphonate) 80.0%
INERT INGREDIENTS: 20.0%

KEEP OUT OF REACH OF CHILDREN
CAUTION

STATEMENT OF PRACTICAL TREATMENT

IF ON SKIN: Wash with plenty of soap and water. Get medical attention if irritation persists.

IF IN EYES: Rinse with plenty of water. Get medical attention if irritation persists.

See Back Panel For Additional Precautionary Statements.

EPA Reg. No. 359-706
EPA Est. No. 34154-FR-06
0186

NET CONTENTS
5 POUNDS

Manufactured for
RHÔNE-POULENC INC.
AGROCHEMICAL DIVISION
Monmouth Junction, N.J. 08852

ALIETTE®

Fungicide



RHÔNE-POULENC

Only CHIPCO ALIETTE fungicide translocates throughout your turfgrass for total Pythium protection.

If you're like many golf course superintendents, you rotate fungicides to reduce the risk of disease resistance. But you still need a "foundation" product you can count on for effective, long-lasting Pythium control. And the name of that product is CHIPCO ALIETTE fungicide.

Unlike other turf fungicides, CHIPCO ALIETTE fungicide features a unique two-way systemic action. Once applied to turf, its active ingredient translocates downward and upward throughout each grass plant. The result: total disease protection from top to bottom.

In addition, CHIPCO ALIETTE fungicide offers you 21 days of Pythium protection from a single application. Even in hot, humid weather, CHIPCO ALIETTE fungicide stops Pythium *before* it gets started.

Best of all, CHIPCO ALIETTE fungicide delivers long-lasting pythium prevention at a down-to-earth price. In fact, CHIPCO ALIETTE fungicide is one of your best fungicide values based on cost per day of control.

This year, discover the fungicide that's in a class by itself. CHIPCO ALIETTE fungicide.

Rhone-Poulenc Ag Company,
CHIPCO Department, P.O. Box
12014, Research Triangle Park, NC
27709.

CHIPCO® ALIETTE®

FUNGICIDE

 RHÔNE-POULENC AG COMPANY

Please read label carefully and use only as directed.
CHIPCO® and ALIETTE® are registered trademarks of
Rhône-Poulenc.

Circle No. 138 on Reader Inquiry Card

JACOBSEN HF5 MOWING UNIT: 1986 (462 hrs.). Has 10 Blade Reels w/Catchers, Grooved Front Rollers & Large Steering tires. Call 312-986-2074. 6/88

Finn Hydroseeders, Mulch Spreaders, Krimpers, Pit Burners, Fiber Mulch & Tackifiers. New & Used. Wolbert & Master, Inc., P.O. Box 292, White Marsh, MD 21162, 301-335-9300. TF

LAWN SEED. Wholesale. Full line of top quality grasses. Improved bluegrass varieties, fine fescues and fine bladed ryegrasses. We specialize in custom mixing. Olliger Seed Company, 89 Hanna Parkway, Akron, OH 44319. Call collect (216) 724-1266. TF

FOR SALE: Complete established Tree Service, upstate NY. 1 acre with 4 Bay garage, pole barn and small house. All tree working equipment. Call or write: Speer Tree Service, 301 Maple Hgts.; Bath, NY 14810. 607-776-3883. 5/88

ROCK PICKER - Anderson E Series, PTO Drive with Hi-Lift, Excellent Condition. Write or call: Bob Ruff, Stoney Creek Golf Course, Wintergreen, Virginia 22958. (804) 325-2200 Extension 530. 5/88

For Sale - beautiful 9 hole golf course, excellent condition. 13 years old, approximately 2,000 pine & evergreen trees lining fairways. All necessary equipment to maintain & plenty of shop buildings. Nice Pro-Shop. Located in S.E. Oklahoma, Contact Hassen Dow - 405-326-6130 or 405-326-7459. 5/88

Olathe Sweeper model 48HL self-propelled high dump unit. Very good condition. Priced to sell. Located in Irvine, CA. 714-857-6408. 5/88

SELECTIVE CONTROL Of Weeds, Brush And Weed Trees!



**PHILLIPS
APPLICATOR**

Spot treatment cuts labor, materials. Automatic — Adjustable — Accurate.



CALL OR WRITE

Edson Associates, Inc.

P.O. Box 16073, Minneapolis, MN 55416
(612) 926-9711 • Telex 272636

FOR SALE - Clearing out new and used Locke Triplex mowers, great buys! **ALSO** some parts. For quotes call 407-683-4238. 6/88

Lawn equipment for sale. 7 Locke mowers, good condition, \$500 ea. 75 inch cut. Large stock of new parts for Lockes. 5 commercial Bobcat lawn mowers 21", \$250 ea. New Honda engine parts for model GV400. Roseman Reel parts. Bath, Ohio, 216-666-8811. 5/88

ZOYSIA MEYERS Z-52 SOD OR SPRIGS. EXCELLENT QUALITY DELIVERED ANYWHERE AT REASONABLE PRICES. **ALSO ROW PLANTING AVAILABLE.** DOUBLE SPRINGS GRASS FARM, SEARCY, AR. 1-800-458-4756. TF

FOR SALE: Toro Parkmaster, micro adj., 7 gang, 5 blade, rebuilt cutting units, rebuilt engine, absolutely top cond., 100% ready for spring. \$10,900. Also, 1968 International rough terrain forklift, side-shift, \$6,900. Also, 7 Jacobsen fairway mowers, no frames (rough) \$700. (313)653-5695. MI. 5/88

SPYDERS—New/Used/Rebuilt. New Kohler engines, short blocks and a complete line of engines and Spyder replacement parts. New Style Nichols-Fairfield Torque Hub Kits, heavy duty Wilton Caster Hub Kits, Remote Air Cleaner Kits, heavy duty Carriage Side Plates. Call or Write: Mobile Lift Parts, Inc., 5402 Edgewood Rd., Crystal Lake, IL 60012. 815-455-7363. 6/88

REINCO HYDROGRASSERS and power mulchers in stock. Opdyke Inc. (Philadelphia Area) 215-721-4444. TF

Used Mathews Lawn Genie, cuts & picks up clippings (40 bushels), VGC, \$1,500. 5 Gang Jake Reel Mowers, \$500. (918) 227-0252. 6/88

HYDRO-MULCHERS AND STRAW BLOWERS New and used. **JAMES LINCOLN CORPORATION**, 3220 S. Jupiter Rd., Garland, TX 75041. (214) 840-2440 (TX), (800) 527-2304 (except TX). TF

Finn hydro-seeder, 1,500 gallon mounted on '72 Chev C50. Good mechanical condition. Ready to work. \$5,000. For information call 313-847-0954. 5/88

SURVIVAL OF THE FITTEST.



Dependability

While others have come and gone, Ditch Witch equipment delivers maximum results... again and again. For example, the 1010 is the hardest working, most dependable 10-HP-class irrigation trencher you can buy. Because you just can't beat quality and dependability.

Get the winning edge. Ask your local Ditch Witch dealer about his full line of landscaping equipment, or call toll-free (800) 654-6481.



**Ditch
Witch**

The Charles Machine Works, Inc.
Perry, Oklahoma 73077-0066
Toll-Free: 1-800-654-6481

Circle No. 111 on Reader Inquiry Card

FREE CATALOG

CAUTION
PESTICIDE APPLICATION
KEEP OFF

Lawn/landscaping chemical warning signs. Complete horticultural chemical protective gear; work clothes and more. Write: **GEMPLER'S**, P.O. Box 270-7005, Mt. Horeb, WI 53572 or call 1-800-382-8473.

Ungalvanized Wire Baskets and Burlap Liners for tree spades and hand dug made by Colorado Wire Products, 9432 Mosenbocker Road, Parker, CO 80134. 303/841-3354. TF

REINCO Power Mulchers and Hydro Grassers. Poniatowski Bros. Equipment Company, 30 Route 31, Flemington, NJ 08822. 201-782-3514. 6/88

PIPE LOCATOR - Inexpensive! Locates, traces PVC, metal, cement pipes, sewers, septic tanks, electric, phone, gas lines. Block & Company, Box 18058, Cleveland, OH 44118. 216-371-0979. TF

ATTENTION GOLF COURSE SUPERINTENDENTS: Great Meyer Zoysia for your Fairways and Tees. Guaranteed Bermuda free. Beauty Lawn Zoysia (Cincinnati) 1-513-424-2052. 3/89

CUSTOM LANDSCAPING TRAILERS. Protect your investment from exposure and theft. Choice of colors, delivery available. **NORTHWEST TRAILERS**, Palatine, IL 800-522-6208 or 312-577-6208. 7/88

Rokor Tree Spade TD-32-C-H, used only 50 hours, \$6,500.00 or best offer. Doug 303-224-9218. 5/88

WANTED

WANTED: Large Lindig and Royer Shredders. Lewis Equipment. 320 Third Street S.W., Winter Haven, FL 33880. (813) 294-5893. 10/88

EVENTS

JUNE

1—Geiger Field Day and Symposium. Harleysville, Pa. Contact: Craig Advertising, 420 Glenwyth Rd., Wayne, PA 19087; (215) 687-8230.

9-12—Florida Nurserymen & Growers Association Annual Convention. Tradewinds Beach Resort, St. Petersburg, Fla. Contact: Beth Rapp, FNGA, 5401 Kirkman Rd., Ste. 650, Orlando, FL 32819; (305) 345-8137.

11—11th Annual Northern California Tree Trimmers Jamboree. Golden Gate Park, San Francisco. Contact: Diane Palacio, San Francisco Recreation and Park Department, McLaren Lodge, Golden Gate Park, San Francisco, CA 94117; (415) 558-4268.

16—Turf Seed/Pure Seed Testing Annual Field Day. Hubbard, Ore. Contact: Tom Stanley, Turf Seed Inc., P.O. Box 250, Hubbard, OR 97032; (503) 981-9571.

16—4th Annual Troubleshooting Seminar. University Theater, University of California, Riverside. Contact: Hartley Bennett, U.C. Cooperative

Extension Seminar Coordinator, P.O. Box 414, Wickenburg, AZ 85358; (602) 684-7308 or Ted Stamen at (714) 683-6491.

19-22—36th Annual Outdoor Power Equipment Institute. Silverado Country Club, Napa Valley, Calif. Contact: Sharon O'Brien, OPEI, 1901 L St., Suite 700, Washington, D.C. 20036; (202) 296-3484.

21—The Lawn Institute Annual Meeting. Westin Hotel, Seattle, Wash. Contact: Eliot C. Roberts, P.O. Box 108, Pleasant Hill, TN 38578; (615) 277-3722.

26-28—Missouri Association of Nurserymen's Annual Convention. Lodge of the Four Seasons, Lake Ozark, Mo. Contact: Pat Klapis, 7911 Spring Valley Rd., Raytown, MO 64138; (816) 353-1203.

27-29—Illinois State Nurserymen's Association Summer Conference. American Club, Kohler, Wisc. Contact: Randy Vogel, Hilton Suite 1702, Springfield, IL 62701; (217) 525-6222.

SERVICES

ATTENTION LANDSCAPE MAINTENANCE CONTRACTORS

We sell full-color brochures with your company name and logo imprinted to help you sell your services to your customers. Orders taken for as few as 100 brochures. "Give a professional touch to your sales calls!" For samples write: Green Tree Brochures, 742 South 4th Street, St. Louis, MO 63102. Ph. 314-241-5609.

USED EQUIPMENT

Sod cutter, used once — Ryan heavy-duty commercial type with automatic shut off. Cost \$5,650 new, will sell for \$3,000 cash. Drill seater, Tye pasture pleaser, 7 ft. wide with 3 hoppers. Excellent condition. Call Robert Bingham 702-786-5426. 5/88

NEW AND USED EQUIPMENT—Asplundh, Hi Ranger and Lift-all forestry bucket trucks, Chipmore wood chippers. Mirk, Inc., (216) 669-3567, (216) 669-3562, 7629 Chippewa Road, Orrville, Ohio 44667. TF

BUCKET TRUCKS, Straight Stick, Corner Mount and Knuckle Boom Cranes. Brush Chippers - New Morbark Disc Type, New Woodchuck Drum Type. Best prices anywhere. Used Chippers - Asplundh, Woodchuck, etc. 2 to 8 usually in stock. Sprayers, Dumps, Stakes, Log Loaders, Crew Cab Chip Box Dumps, Railroad Trucks, 50 in stock. Sold as is or reconditioned. Opdyke's, Hatfield (Philadelphia Area) 215-721-4444. TF

Brouwer Sod Harvester, Irrigation Pipe, Brillion Turf Master Seeder, Pallet Slider and Other Turf/Sod equipment. 616-669-6713. 6/88

BUCKET TRUCK: Hi Ranger 65', 57', 50'. Skyworkers with chip boxes. Asplundh bucket trucks with chip boxes. Asplundh brush chippers. Bean 55 gal. sprayers. Pete Mainka Enterprises, 633 Cecilia Drive, Pewaukee, WI 53072. 414-691-4306. TF

MISCELLANEOUS

FREE PARTS CATALOG—If you own a 36"—48"—52" walk-behind mower and you feel you're paying too much for parts, call Preco Distributors toll-free and request our parts catalog. BELTS, BLADES, GRASS CATCHERS, WHEELS AND LOTS MORE! Replacement parts that fit: BOB-CAT, BUNTON, KEES, EXMARK & OTHERS. 1 day shipping coast to coast available. All parts carry a 90-day warranty. Don't wait, call 24 hours a day. TOLL-FREE 1-800-428-8004, in Mass. 413-596-5505. PRECO DISTRIBUTORS, 97 Center St., Ludlow, MA 01056. TF

LANDSCAPE TRAINING VIDEOS

Intermediate mower maintenance field and shop repair; efficient/profitable mowing techniques; professional shrub trimming, etc. Write for free brochure.

C.D. Anderson Landscape Videos
515 Ogden Avenue
Downers Grove, IL 60515

LANDSCAPERS SUPPLY FREE CATALOG. Buy direct and save up to 75% on a full line of commercial lawn maintenance equipment, engines, parts and accessories. Call Toll Free 1-800-222-4304. 12/88

AD INDEX

NO.	ADVERTISER	PAGE
101	BASF Corp.	53
102	Barebo, Inc.	79
103	Brouwer Turf Equipment LTD	65
147	Bunton Co.	87
104	Chevron Chemical Co.	5
105	Ciba-Geigy Corp./Subdue ..	55
106	Club Car, Inc.	71
107	Conwed	76
108	Deere & Co., John	2-3
109	Charles Machine Works, Inc.	86
110	Charles Machine Works, Inc.	88
111	Charles Machine Works, Inc.	90
112	Dixon Industries	77
113	Elanco Products Co./Rubigan	1
114	Elanco Products Co./Rubigan	1
115	Elanco Products Co./Sonar	12-13
116	Elanco Products Co./Team	49
117	Elanco Products Co./Surflan	49
269	Excel Industries, Inc.	43
119	Hoechst-Roussel Agri-Vet Co.	31
120	Howard Price Turf Equipment	51
121	International Lawn Garden & Power Equipment	85
122	Jacobsen Div. of Textron ..	35
123	Johnson & Sons, S.C.	44
118	Kubota Tractor Corp.	7
260	Kut Kwick Corp.	29
125	Landscape Expositions	75
148	Landscape Supply Corp.	82
126	Lesco, Inc.	69
127	Lofts	CV4
149	Lebanon Chemical Corp.	80
128	Maruyama U.S., Inc.	42
129	Melroe Co.	75
130	Mobay Corp./Bayleton	32-33
131	Mobay Corp./Dylox	CV3
132	Mobay Corp./Nemacur (Regional)	81
133	Mobay Corp./Oftanol (Regional)	66-67
134	Monsanto Co.	63
135	PBI Gordon/Trimec	58-59
136	PBI Gordon	16-17
138	Rhone Poulenc, Inc./Aliette	89
137	Rhone Poulenc, Inc./Chipco	24
139	Sandoz Crop Protection Corp.	38-39
266	Shindiawa, Inc.	14-15
140	Standard Golf Co.	21
141	Tecumseh Products Co.	45
142	Tee-2-Green Corp.	CV2
143	Toro Co.	22-23
144	Toro Co./Irrigation	46-47
146	Warren's Turf Professionals	37
145	Wells Cargo, Inc.	72

This index is provided as an additional service. The publisher does not assume any liability for errors or omissions.

A little lesson in politics

Those of you who made it this far in the magazine may have noticed a piece in our Green Industry News about the EPA (Environmental Protection Agency) banning diazinon on golf courses and sod farms. In looking at the ruling, a few questions popped into my mind on how that fine example of a "working" bureaucracy handled the case.



For starters, why is the EPA attacking golf courses and sod farms in the first place? They account for about 10 percent of all the diazinon used in the country annually. Admittedly, some bird kills involved diazinon, mostly from misapplication. But the EPA had already put diazinon into the Restricted Use category, cutting its recommended application rate in half. Also, the EPA used an industry-wide case study of kills to determine the fate of the users of 10 percent of the material. And none of the kills occurred on sod farms. Not only that, the applicators affected by the ruling, sod farmers and superintendents, are some of the most experienced and best trained applicators in the industry. The safest, that is.

Incidentally, the other 90 percent of the material is used by crop farmers, lawn care operators and homeowners.

Not trained professional commercial applicators. Homeowners. Doctors, lawyers, salesmen, whatever. Generally, these people don't know their pesticides from a hole in the ground. Many reason that if two pounds of a product per 1,000 is good, four pounds must

be better.

But this is where the politics really kicks in. The homeowners are a much larger group (of voters) than commercial applicators. If the homeowners get regulated, they might complain. Then they might find out which people (our legislators) allowed current EPA employees into regulatory decision-making positions. Then somebody might lose a job (get voted out of office or fired if the person is appointed to a position like, say, the EPA administrator). If the EPA weren't so paranoid about those "environmentalists" representing at most one percent of the population (probably less), then maybe, just once, they'd make an intelligent decision regarding proper use of pesticides. But I guess it doesn't work that way, does it? Nope. So what happens? The pros get burned, the homeowners do damage and the bureaucracy lives happily ever after.

Now, I give credit to Ciba-Geigy, the American Sod Producers Association and GCSAA, among others. They put up a good fight. But, sometimes it just doesn't matter. Maybe the green industry just needs to complain a bit louder.

Jeff Sobul, associate editor

Read

LANDSCAPE TRAINING VIDEO

Intensive, hands-on instruction for the landscape professional. This video covers the most important aspects of the landscape business, from the initial client contact to the final installation. It is a must-have for every landscape professional.

Write for more information.

G.D. Anderson, Landscape Video
4150 Green Avenue
Spokane, WA 99205



Handle your grub situation fast, before things get really ugly.

At the very first sign of grub damage, apply DYLOX® insecticide. Nothing kills all species of white grubs faster. Within hours, the grubs are dying and the turf is recovering. When grubs threaten, act fast.

Use DYLOX. And turn an ugly little problem into a lot of beautiful turf.

For more information, contact Mobay Corporation, Specialty Products Group, Box 4913, Kansas City, MO 64120.

Dylox

Mobay Corporation

A Bayer USA INC. COMPANY

Bayer



Accept No Substitutes

Be sure you buy only blue tag certified Baron.
Its purity and performance are assured.

For seventeen years, professional turfmen have relied on Baron Kentucky Bluegrass. And they've never been disappointed. Baron has always provided high performance: quick germination, dense growth, disease resistance and a dark green color.

Top performance, excellent appearance and consistent availability. No wonder more Baron has been sold than any other proprietary Kentucky bluegrass in history.

Concerned about quality? Buy only certified Baron.



Lofts Inc.

World's largest marketer of turfgrass seed

Bound Brook, NJ 08805
(201) 356-8700 or (800) 526-3890

Lofts/New England
Arlington, MA 02174
(617) 648-7550

Lofts/Great Western
Albany, OR 97321
(503) 928-3100 or
(800) 547-4063

Sunbelt Seeds, Inc.
Norcross, GA 30071
(404) 448-9932 or
(800) 522-7333

Lofts/Maryland
Beltsville, MD 20705
(800) 732-3332
(800) 732-7773 (MD)

Lofts/New York
Brewster, NY 10509
(914) 278-2710

Oseco Inc.
Brampton, Ontario
Canada L6V-2L2
(416) 846-5080

To locate the Lofts' distributor nearest you, call:
(800) 526-3890 (Eastern US) • (800) 547-4063 (Western US)

Circle No. 127 on Reader Inquiry Card